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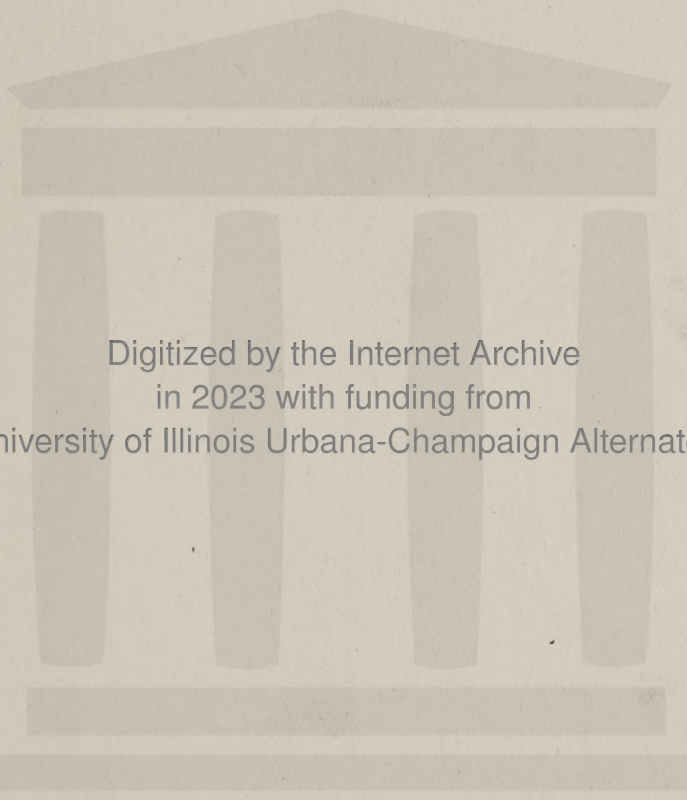
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THE COOK COUNTY HOSPITAL CLINICAL SOCIETY.
THE CHICAGO GYNECOLOGICAL SOCIETY.
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THE CHICAGO MEDICAL RECORDER

JANUARY, 1894.

Original Articles.

SUBVOLUTION, A NEW PTERYGIUM OPERATION.

By BOERNE BETTMAN, M. D., CHICAGO.

PROFESSOR OF OPHTHALMOLOGY AND OTOTOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS;
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EYE AND EAR INFIRMARY.

Many theories have been advanced to explain the origin and mode of growth of pterygium.

Arlt ascribes it to an erosion of the cornea at the scleral margin which in healing pulls the conjunctiva into the cicatrix.

Poncet found micrococci in some of his pathological preparations and regarded them in the light of etiological factors.

Theobald concluded that the long continued action of the recti muscles usually the interni was the responsible cause. Mannhardt regarded episcleritis as the promoting element.

None of these explanations, however, are entirely satisfactory. A thorough and critical examination of this subject has recently been made by Fuchs, of Vienna who after long continued clinical and microscopical investigation concluded that a pterygium results from a pingucula, that the hyaline degeneration which occurs in this pathological product is continued on to the adjoining corneal tissue over which the conjunctiva is pulled.

As many methods of operation have been introduced for the successful eradication of pterygium as there have been theories advanced for the elucidation of its growth and pathology.

These may be all grouped under the following heads:

Transplantation of the pterygium; excision; strangulation, and evulsion.

The simplest, and according to Arlt, the most efficient operation is that of excision as first practiced by Cocius. It consists in separating the pterygium from the underlying cornea and excising it with a triangular piece of conjunctiva. The conjunctival wound is closed by a suture placed a few mm. from the corneo scleral margin.

In the following diagram, No. 1, a, represents the pterygium, b, the triangular piece of conjunctiva to be removed, and c, d, the sutures which are to unite the cut.

Wright, of Columbus, and Prince, of Springfield, report favorable results following evulsion. The former tears the pterygium with a forceps. The latter loosens it from the cornea with a strabismus hook and then proceeds as in the operation of excision.

Demarres Diagram, No. 2, practiced transplantation as early as 1855. After dissecting loose the flap on the cornea and on the sclerotic, he makes a conjunctival incision downward, commencing

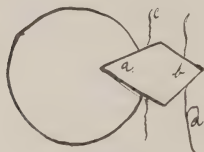


DIAGRAM No. 1.

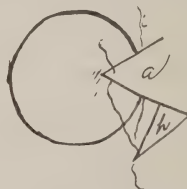


DIAGRAM No. 2.

from the lower border of the base. Into the lower edge of the triangular gaping wound the apex of the pterygium is sewed.

Knapps' modification consists in dividing the pterygium when large from apex to base, into two flaps. The ends are cut off and each flap is transplanted into its corresponding upper and lower conjunctival wound.

The exposed surface of the sclerotic is covered by first dissecting up and then drawing together the conjunctiva.

Strangulation is advocated by Szokalski and Galozowski. The first Diagram, No. 3, passes a thread armed with two needles under the corneal and sclerotic portions of the pterygium. The thread is cut close to the needles leaving three threads. The ends of each are tied, a knotting of the middle one puckers the pterygium and all three of them cut off its circulation.

Galozowski Diagram, No. 4, separates the pterygium from the cornea, passes both needles at either end of the thread through the apex from above downward, leaving a loop on the upper surface. The needles are again entered at either border of the base through

its under surface. It will be observed that the flap is turned downward upon itself, its upper surface being brought in contact with the sclerotic. The two ends of the suture are tied together thus strangulating the pterygium at the base.

Hotz recently read a paper at the A. M. A. recommending transplantation of a Thiersch's graft taken from the arm to replace the defect produced by retraction of the dissected pterygium.

Most of these procedures are frequently followed by a renewal of the growth. There are two fundamental principles involved in all these operations. One is destruction of tissue, the other is its preservation and growth in a new direction. None of the authors, however, take into consideration the salient feature involved in all plastic operations of the conjunctiva, namely, the prevention of contact between two raw surfaces. In excision, strangulation, and transplantation, the cut edges of the conjunctiva must necessarily be apposed to the denuded surface of the cornea. To me this accounts for the relapses which so frequently occur.

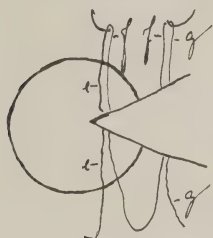


DIAGRAM No. 3.

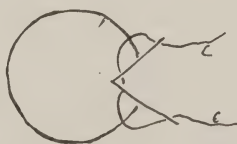


DIAGRAM No. 4. C C Thread in position, both ends are knotted, thus strangulating the pterygium.

Fuchs has shown that with the growth of the pterygium there is associated a fibrillar degeneration of the cornea which involves Bowman's membrane and even the superficial layers of the cornea proper. In dissecting off the wing shaped formation a raw uneven surface is exposed. If now the cut surface of the conjunctiva comes in contact with this or the proliferation at the corneo scleral margin it will unite with it and is liable to be again drawn over the cornea.

During the last six years I have followed my own method which satisfactorily overcomes the objection just stated. Its underlying principle is to prevent readhesion by placing a mucous surface in contact with a raw one. To do this I turn the triangular flap underneath, which action can be best described by the term subvolution (turning under). In order to carry out this rule I have made the operation in the following manner :

The pterygium is gathered up by the two branches of a fine

forceps serrated at the ends. A knife is passed underneath it close to the cornea, and the triangular membrane is dissected off toward the apex. A suture with a needle at each end is passed through the apex. Both needles are inserted from above downward, thus leaving a loop of thread on its outer surface. The needles are now passed through the base from below outward. The points of puncture being the ends of parallel lines drawn from the punctures in the apex and just far enough back so that when the flap is turned upon itself underneath the base, the role will correspond with the corneo scleral margin.

The two ends of the suture are now firmly tied. We have induced a condition similar to gumming the flap of an envelope to its body. The under surface of the pterygium is brought in contact almost throughout its entire extent, and adheres. A readhesion to



DIAGRAM No. 5. ii Suture under pterygium.

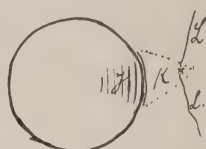


DIAGRAM No. 6. y Denuded surface of cornea. K Pterygium turned under its base, dotted lines its edges. L L Suture knotted.

the cornea is prevented by the role of mucous membrane at the corneo scleral margin.

This operation may appear to a casual observer similar to Galozowski's, of whose method I only recently learned while looking through ophthalmic literature. But the principle involved is entirely different. He aims at destruction of tissue. I, at its preservation and the prevention of the renewal of the growth by apposing a smooth surface to raw one.

The only seeming drawback to this procedure is the temporary unsightly thickening produced by the folding. This, however, disappears in a few days, and after a week or two flattens and settles down to the niveau of the adjacent parts of the eyeball. It adheres to the sclerotic.

The raw surface of the cornea is covered with scar tissue and regenerated epithelium.

No matter how much the base of the pterygium contracts after dissection from the cornea, sufficient allowance can always be made by stitching the apex more or less forward.

The apex may be cut off, or not depending entirely upon the degree of thickness. It is hardly necessary to state that the eye is

bandaged and cleaned daily with a boric solution, and that the thread is removed after two or three days.

My operation is especially indicated in large pterygia. Even in smaller ones, where the growth contracts considerably after having been separated from the cornea, it is followed often by good results.

In these cases adhesions will form, which will draw the turned flaps over the sclerotic up to the corneo scleral margin.

My friend, Dr. Beard, informed me only two days ago that he had seen Dr. Landolt, of Paris, turn the pterygium under as I do, and then sew the dissected conjunctiva from above and below over the denuded sclerotic. This latter act, however, I regard as an objectionable feature, since it defeats the very object of my operation by placing the cut edge of the conjunctiva in contact with the raw corneal surface.

34 WASHINGTON STREET.

CLINICAL SIGNIFICANCE OF PEPTONURIA.

By JOHN A. WESENER, PH. C.

PROFESSOR OF CHEMISTRY, COLLEGE PHYSICIANS AND SURGEONS, AND CHICAGO COLLEGE OF PHARMACY.

Urine analysis has taken a prominent position in the study of medicine, with every indication of further advancement. Up to a recent period about the only tests employed were those for the determination of abumen and sugar, and seldom was a microscopical examination made. At that time the presence of albumen or sugar was immediately put down as serious and fatal. Erroneous impressions exist to a large extent even to the present day, notwithstanding the fact that science has proven that this condition may be purely physiological and not pathological, unless other symptoms supervene.

The chemical tests of recent years have improved much in delicacy and accuracy, and that, with the great satisfaction of being easily applied, which means earlier diagnosis and treatment. The subject of peptonuria is of the greatest importance, not only from the standpoint of the medical practitioner at large, but from that of the surgeon, for it is often difficult to diagnose an abscess of any one of the internal organs and the detection of peptone in the urine goes far to warrant a diagnosis of this kind, its presence usually indicating that suppurative changes are in progress in some

part of the system, the diagnostician having carefully excluded all other known causes.

Maixner has shown that peptone derived from food will pass directly into the blood in ulceration of the intestine, and give rise to a condition known as entero-genic peptonuria. Jaksch has found it in several cases of scurvy and phosphorus poisoning. Its presence in the source of pneumonia may be hailed as a very favorable sign, for it means that the stage of resolution has commenced. I have had the pleasure of demonstrating this a number of times with good results in every case, and consider it of most importance since pneumonia is such a treacherous disease. If by a simple test of the urine a favorable prognosis can be made, the satisfaction must indeed be great to the physician who can go home and feel that at last all is favorable, though the clinical outlook may be dark.

According to Fischel, peptone is a normal constituent of the urine in the puerperal state, the peptonuria usually beginning the first day after delivery and continuing up to the twelfth day. In a later article he demonstrated that peptone was often present in the urine of pregnant women two months previous to confinement, for which he could give no explanation. Köttnitz reports a number of cases of "dead gravid uterus," cases in which fetal life has become extinct, in which peptone was always present, and to a much greater extent than in the cases of Fischel. Peptone is always present in sudden breaking down of tissue substance. Pacanowski reports two such cases of emboli and apoplexy of the brain. It is also always present in suppurative pleuritis, broncho-blenorrhea, suppurative phthisis, cerebro-spinal meningitis, acute articular rheumatism, smallpox, typhoid, paratitis, etc., suppurative pleuritis giving the largest amount, 69 per cent; croupous pneumonia 63 per cent; and peritonitis 33 per cent.

In tuberculosis of the intestines, peptone could not be demonstrated, and, according to Jaksch, it is never present in leukemia or any collection of leucocytes. It is not found in tubercular meningitis, but always in cerebro-spinal meningitis, which is of crucial significance; hence the absence of peptone with the presence of clinical symptoms of meningitis, always implies a tubercular character provided we have no ulcerative processes in other organs.

According to Hofmeister, peptone produced through suppurative changes is identical with that obtained from egg albumen. The causes of peptonuria are quite different from those to which other forms of albuminuria are due, for peptone has never been

found in nephritis, leukemia or anemia. In all inflammation due to a bacterial action, peptonuria is always present. The pus microbes have two properties: first, they destroy the fixed tissue cells; second, they liquefy the intercellular substance, which is a peptonizing action. This latter action is very powerful and has been well demonstrated on culture media. The microbes of acute infectious diseases have also the same properties which belong to pus, but their peptonizing action is slight, hence in the latter case we will find very little as compared with that of pus infection.

The peptone formed in this way is reabsorbed; part of it used up in active metabolism and the remainder eliminated by the kidneys.

TESTS FOR PEPTONE. If the urine contains albumen or mucin, it must first be removed. Albumen is removed as follows: to 50 c. c. of urine, add 10 c. c. of a saturated solution of sodium acetate and then a concentrated solution of ferric chloride, until a deep red color is produced. Potassium hydrate is now added, drop by drop, until neutral, then boil and filter; test a portion of the filtrate for albumen. Apply the acetic acid and potassium ferro cyanide test. If albumen is found, the filtrate must then be treated again with a little sodium acetate and ferric chloride solution, boiled and filtered. This is repeated until the test for albumen given above fails to react. The remaining filtrate, having been allowed to cool is then treated for peptone by adding a few drops of sodium hydrate and two or three drops of cupric sulphate; this gives a purple color if peptone is present and is known as the biuret test. A saturated solution of tannic acid gives a good reaction with peptone, but does not show traces that will be shown by the biuret test, and should any of the iron be left in the filtrate, it will form with tannic acid, the tannate of iron, which would obscure any precipitate formed. The removal of albumen by this method has the advantage of also removing the greater part of the coloring matter from the urine.

Devoto recommends the precipitation of albumen with crystals of ammonium sulphate. This takes more time and, as regards the urine, has no advantage over the method given. If peptone is tested for in the blood or visceral fluids, Devoto's method should be used as the results are more accurate.

Albuminous urine which has decomposed cannot be tested for peptone, as some of the albumen has been converted into peptone, and would give a reaction which would be of no clinical value, even though the albumen has been removed. This also applies to

decomposed nonalbuminous urine, since bacteria have an albuminous structure peculiar to themselves which will react unless removed. (See removal of albumen.) Urine containing mucin appreciable with acetic acid must be removed. To 20 c. c. of urine add just enough lead acetate solution to produce a flocculent precipitate, an excess must be avoided; filter and test filtrate for peptone, using the biuret test. A simple method of making a quantitative estimation for peptone is as follows: To 10 c. c. of urine apply the biuret reaction; then dissolve a known quantity of peptone in 10 c. c. of normal urine and apply the biuret test. Repeat the last operation until the colors are identical. Having a known strength of peptone solution for comparison this will give you the amount of peptone in the urine. I have found this to be satisfactory and simple. I need scarcely add that where albumen and mucin are absent the biuret or tannic acid test can be proceeded with without the preliminary steps.

CASES.

1. Mrs. M. Diagnosis: A tumor about six inches in diameter, in all directions, was felt just behind uterus. It contained a yellow fluid, with fecal odor, which microscope showed to be pus. The urine had sp. gr. 1020; reaction, acid; albumen, etc., negative; peptone, slight trace.

2. Mrs. A. Diagnosis: A pelvic abscess demonstrated by operation. The urine had sp. gr. 1022; reaction, neutral; albumen, etc., negative; peptone and urates found.

3. Mrs. L. Diagnosis: Suppurative wound with poor drainage. The urine had sp. gr. 1026; reaction, acid; albumen, etc., negative; peptone and urates found.

4. Mrs. O. Abdominal hysterectomy infection setting in on fourth day. The urine had sp. gr. 1020; reaction, acid; peptone and urates found; albumen, etc., negative.

5. Miss. H. Multiple fibroid of uterus. Abdominal hysterectomy with vaginal fixation. On third day dressings were stained by a greenish fluid which gave off a very offensive odor, and which microscope proved to be pus. The urine had sp. gr. 1028; reaction, acid; peptone and urates found; albumen, etc., negative.

6. Mrs. M. Ovarian cyst and tubal abscess disclosed by operation. The urine had sp. gr. 1020; reaction, neutral; peptone, urates and albumen found.

7. Mr. J. Complained of excessive pains when defecating.

Rectal abscess discovered. The urine has sp. gr. 1020; reaction, acid; peptone and trace of bile; albumen, etc., negative.

8. Mrs. S. Excessive pains in right side of head. An abscess was discovered above mastoid process of same side. The urine had sp. gr. 1022; reaction, acid; peptone found; albumen, etc., negative.

9. Multiple boils on back of neck. The urine had sp. gr. 1030; reaction, acid; peptone found; no sugar; albumen, etc., found.

10. Miss D. Case of diphtheria with usual complications of kidneys. The urine had sp. gr. 1020; reaction, acid; peptone, albumen, pus and granular casts found.

11. Cyst of kidney. Cystic fluid contained blood, albumen, pus in abundance and peptone. The urine had sp. gr. 1028; reaction, acid; peptone.

12. Cyst of kidney and liver. Cystic fluid of kidney contained albumen, blood, peptone, pus, cholestrin, lucin and blood casts. The urine had sp. gr. 1020; reaction, alkaline; peptone.

13. Mrs. McG. Diagnosis. Gall stone. Operation showed abscess of gall bladder. The urine had sp. gr. 1018; reaction, acid; peptone; bile a trace, albumen, etc., negative.

14. Mrs. H. Confinement with breech presentation, peritonitis setting in immediately after delivery; final recovery. The urine had sp. gr. 1018; reaction, alkaline; peptone, abundance; albumen, pus granular casts; reaction for peptone becoming less marked as disease abated.

15. Dr. S. Pneumonia, with kidney complications. Urine tested on fourth day of disease when stage of softening, marked by the discovery of peptone, had set in. Marked improvement from this time until final recovery. Peptone found up to twelfth day. Granular casts were found for three weeks after patient was about, but finally disappeared. The urine had sp. gr. 1024; reaction, acid highly colored, peptone, urobilin, pus, granular casts; albumen negative.

305 SOUTH LEAVITT STREET.

A PLEA FOR THE EARLY CLIMATIC TREATMENT OF PULMONARY TUBERCULOSIS.

By F. E. WAXHAM, M. D., DENVER, COLO.

Physicians of the western and southern Rocky Mountain region so frequently come in contact with cases of pulmonary tuberculosis, sent to these regions by their eastern confreres, so far advanced that there is no possible chance for cure, or even for prolongation of life that they would utter a most solemn protest.

We here meet with invalids not only from all parts of this country, but from Europe as well, attracted by the reputation of this great health region. Coming, as many do, in the very latest stages of the disease, scarcely able to survive the fatigue of the journey, or to breathe in this high altitude, they and their friends are doomed only to bitter disappointment. Many seem to believe that if they can only reach this land of bright sunshine and invigorating atmosphere their ills will at once take wings and disappear. This bright illusion should be dispelled and the sooner the better, for the many disappointments must necessarily injure the reputation of the greatest health region of the world, and no one can picture the misery and disappointment of those who have left home, friends and every comfort to find that their malady is only increased, and rapidly and unrelentingly hurrying them to their graves. Consumption is not often cured by a change of climate from the fact that cases are so far advanced, and destruction of lung tissue has already occurred to such an extent as to almost preclude any hope of recovery.

While occasionally one will do well and recover a fair degree of health when the disease has reached an advanced stage, yet the great majority will only meet with disappointment. The time to seek a change of climate is while the disease is in its incipiency. The climate of the western or southern Rocky Mountain region seldom fails to cure those cases that come early, and I submit that the early climatic treatment of pulmonary tuberculosis offers the greatest hope that the medical profession can extend to an afflicted people to-day. There may be some dispute; there may be some difference of opinion as to how cure is effected, whether it is due to the dryness of the atmosphere, lessened atmospheric pressure, to the rarity of the atmosphere, or whether those organs that produce antitoxines or nucleins are so stimulated by the peculiar atmospheric conditions that the bacteria and their products are

destroyed or rendered harmless; there may be some difference of opinion as to how and why cure is effected, but the fact remains that relief is obtained from one of the most relentless diseases that afflicts mankind. While other modes of treatment have at various times inspired the hope, not only of the medical profession but of the whole civilized world, that panaceas had been found, for a disease that is fast disseminating the human race, a vain hope that has been frequently and bitterly dispelled, yet the climatic treatment of tuberculosis still remains the only treatment meeting the full confidence of our profession. It should be repeated, and repeated time and again, until it rings in the ears of every medical man that cases to receive the greatest benefit from climatic treatment must be sent early while the disease is in its incipency. These cases should seek a change of climate as a first resort and not "as a last resort" after other methods of treatment have been tried and found wanting. and when it has been declared that nothing more can now be done and you must try a change of climate. As soon as a patient shows evidence of tuberculosis he should at once be directed where to find almost certain relief. No delay should be sanctioned or encouraged in the vain hope that other lines of treatment may give relief. The hills and valleys and plateaus of the Rocky Mountain region should and will become a thickly populated region.

There are two classes that should permanently occupy southwestern Texas, New Mexico, Arizona, Colorado and Utah, and largely constitute the population, those with incipient tuberculosis, and those predisposed to the disease by heredity. I would emphasize the importance of seeking these regions by those predisposed to the disease. Why should they wait for the onset of a most relentless disease, and even then delay until it is often too late, when by a residence here a long and useful life could be insured. The large cities, the fertile valleys, and the mineral regions offer a rich field for a large population of industrious people.

Here the artisan, the farmer, and the capitalist will find abundant opportunity for employment and profitable investment. Why then should these people with incipient disease, or predisposed to it, wait until health and energy and strength are gone. It should again and again be repeated that these people must come early, and they should come prepared to stay permanently. Nothing is more disastrous, as a rule, than the returning after a few months to eastern homes. The disease reasserts itself with

redoubled energy, and little or nothing is gained by what is often a great sacrifice.

In this great health region will be found many large and attractive cities, and varieties of climate, while opportunities for business and employment, which must not be overlooked, vary accordingly.

The first question asked by these people is this: Where shall we go? This will depend upon many circumstances. We must bear in mind the fact that they require the greatest amount of sunshine and out door exercise that it is possible to obtain, a dry atmosphere, a uniform temperature, an elevation as great as can be comfortably endured, and in addition an occupation that will afford pleasant and profitable employment.

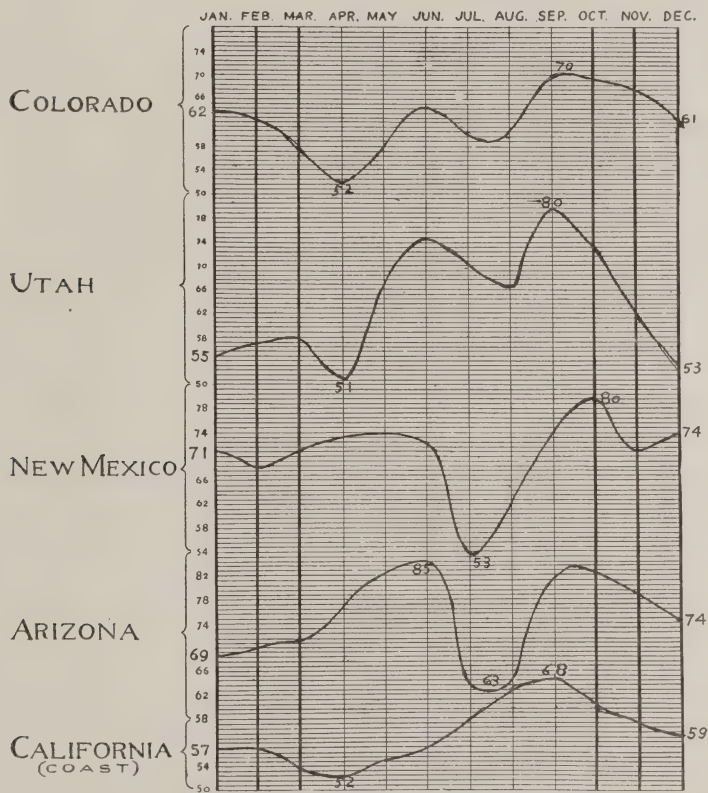
In southwestern Texas, New Mexico, Arizona, Colorado, Utah, and southern California, there should be room for every one with incipient consumption and those predisposed to it. Among the best known places in these regions may be mentioned the following cities:

	POPULATION.	ELEVATION.
San Antonio, Texas.....	40,000	686
El Paso, ".....	10,000	3,697
Las Cruces, New Mexico.....	2,500	3,873
Albuquerque " ".....	5,000	4,935
Santa Fe, " ".....	6,000	6,439
Las Vegas, " ".....	5,000	6,383
Phoenix, Arizona.....	3,000	1,068
Denver, Colorado.....	106,000	5,294
Pueblo, ".....	28,000	4,653
Colorado Spring, Col.....	12,000	5,978
Manitou, ".....	1,000	6,309
Canon City, ".....	4,000	5,329
Glenwood Springs ".....	3,000	5,743
Salt Lake City, Utah.....	45,000	4,262
Los Angeles, Cal.....	50,000	267
Riverside, ".....	6,000	
Redlands, ".....	2,000	
San Diego, ".....	16,000	67

We are often asked for information regarding the population of these different cities and the likelihood of finding employment, and also in regard to their altitudes. These data I have therefore appended. The population is that given by the United States census of 1890, the altitudes are from the United States Geological Survey.

It must be remembered that there is no climate that is abso-

lutely perfect. There will be some parts of the year in every locality that has its objectionable features. While many will do well the year around in any of the localities mentioned, yet there will be those who will find the sand storms of New Mexico and Arizona during February and March, unpleasant and injurious. Many will find the heat of Texas, New Mexico, Arizona and south-

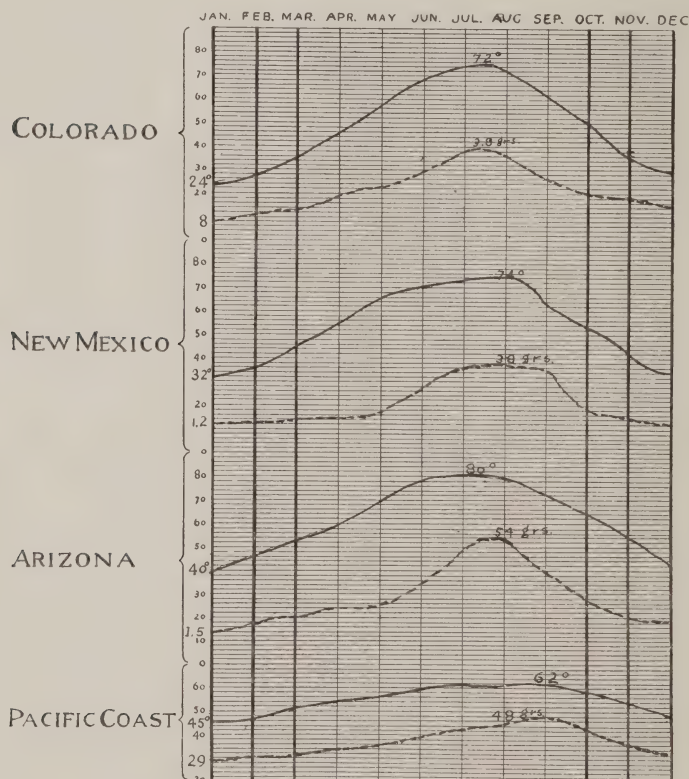


PERCENTAGE OF SUNSHINE.

100 represents Continuous Sunshine.

ern California during the summer season depressing, and will do better during this period in the higher and cooler atmosphere of Colorado or Utah. Again, many will find the winter season in Colorado and Utah too cold, and will do much better in a warmer atmosphere, and at lower altitudes. It has already been mentioned that these people require the greatest possible amount of sunshine, a uniform temperature, and a dry atmosphere. The ac-

companying diagrams from General A. W. Greeley's government report, and kindly drawn for me by Mr. Elias A. Long, of Buffalo, N. Y., graphically illustrates the percentage of sunshine, the temperature and precipitation during each month, in Colorado, Utah, New Mexico, Arizona and California, and without which I feel that this paper would be incomplete. Being government reports they must be looked upon as correct and unprejudiced.



CURVES TYPICAL OF THE NORMAL TEMPERATURE AND WEIGHT OF AQUEOUS VAPOR.

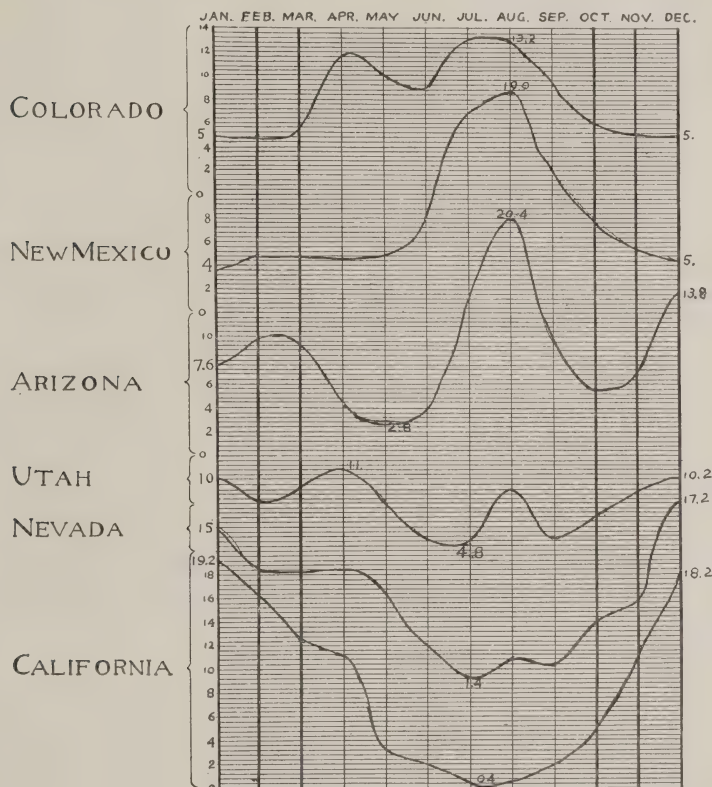
—————Indicates Temperature in degrees F.

.....Indicates grains of Aqueous Vapor in each cubic foot of Air.

The locality selected will depend upon the nature of each individual case, but in general terms it may be said that if there are no contraindications, as heart disease or a highly nervous organization, that incipient cases or those predisposed to the disease,

will do better in a high altitude, while those far advanced cases or those of a highly nervous temperament do better at a low altitude and in a warmer atmosphere.

It is generally believed by eastern physicians that hemorrhagic cases are unsuitable to climatic treatment, but I believe it



CURVES TYPICAL OF THE NORMAL PRECIPITATION.

The Values of the several Months are expressed as a percentage of the Annual Precipitation.

is the almost unanimous opinion of the physicians of the Rocky Mountain region that these cases are the very ones in which the prognosis is the most favorable.

CALIFORNIA BUILDING.

REPORT OF A CASE OF CEREBRAL TUMOR, DIAG-
NOSED BY FOCAL SYMPTOMS, WITH OPERATION,
SUCCESSFUL REMOVAL OF TUMOR AND EX-
HIBITION OF SPECIMEN.

BY DR. D. A. K. STEELE, CHICAGO.

In reporting to you a case of cerebral tumor diagnosed by local symptoms and successfully removed, I desire to express my obligations to Drs. R. H. Isbester, O. A. King and W. E. Quine, for a careful history, thorough examination and accurate diagnosis of the case before it was referred to me for operation, and to Dr. T. A. Davis for valuable assistance during and after the operation.

The subject of cerebral tumors became interesting to surgeons in 1879 through the reports of cases by Macewen, of Glasgow, and again especially in 1884, when Bennett and Godlee, of London, arrested the attention of the surgical world by their narration of the diagnosis and removal of a subcortical tumor of the brain. Since then many cerebral tumors have been diagnosed by focal symptoms, and a few successfully removed. Horsley, Keen, Hirshfelder, Morse, Deaver, Nancrede and others have reported cases.

I desire to submit the following case as an addition to the literature of the subject:

The patient was referred from the dispensary clinic of the College of Physicians and Surgeons to my regular Saturday clinic for operation in the early part of October. When I first saw the case I made a thorough examination, and placed the patient on large doses of iodide of potassium for the purpose of clearing up the question as to whether or not there might be syphilitic brain disease, although no history of any was elicited. Specific treatment produced no effect on his symptoms. Four weeks ago the patient was operated upon. The history was as follows:

The patient, John Pierson, was born in Sweden, January 18, 1852, is 41 years old. He is the oldest of nine children, four boys and five girls. His family was always very healthy. His mother, brothers and sisters are living. His father died of old age at seventy-seven. He is a laboring man; married, and has six children, four girls and two boys, all of whom are living. Upon arriving in this country, May 15, 1881, he went direct to Batavia, Ill., where he remained six years. He then went to St. Charles, Ill., and lived there until he came here for treatment.

Chicago Medical Society, December 18, 1893.

About five years ago the patient while asleep in bed was aroused by a sharp pain, of a cramping character, in the calf of the right leg, which lasted from two to five minutes. It was very severe. This pain and the following plantar contraction of the toes, constituted the first attack. About one week later he had a second cramp, which was in severity the equal of the first. It occurred in the same region and was of about the same duration. The cramps appeared at an interval of seven or ten days and were about as severe as the first. Just preceding a spasm there was a prickly, paresthetic feeling in the locality of the expected mono-spasm. Two things characterized these spasms: First; That they extended up the right limb gradually until they reached the right groin; they then passed into and extended in the lower part of the trunk, when they became more painful. Secondly; After each spasm the limb was weaker, so that as the spasms became more frequent they caused a general weakening of the muscles, and therefore, lameness. The spasms continued to extend upward until the right arm and the face were affected. It took about one year for the whole right side to become affected. The spasm would always start in the same place, creep upward to the trunk, and then die away, before the arm and face were affected. After the right side was affected the patient sometimes had a prickling sensation in the left leg, but at no time were there any spasms. During the whole period of five years the patient never had an attack of unconsciousness. He often had very severe headaches, starting in the occipital region and extending to the frontal.

Examination showed motor paralysis and sensory blunting of the right leg; the right patella tendon reflex was much increased; hearing was much reduced in the right ear; there was no choked disc or optic neuritis; none of the orbital muscles were involved. Speech was slow. A diagnosis of cerebral tumor originating in the leg center of the cortical area of the left hemisphere of the brain and extending downward and forward to the arm and face centers, was made, and operation advised, after specific treatment was tried without avail.

The patient was prepared and I was ably assisted during the operation by Dr. T. A. Davis.

The toilet of the operating field was thoroughly made the previous day, shaving and cleansing, and a wet $\frac{1}{2000}$ bichloride dressing applied to be worn until time of operation.

After the patient was thoroughly under chloroform a small solid cylindrical rubber band was passed around the head to render

bloodless the field of operation in the scalp. Four stitches, as recommended by Dr. F. Shafer, of this city, were introduced equidistant apart, binding the rubber constrictor to the scalp so as to prevent slipping. Owing to the extent of the symptoms, showing that the convolutions of the upper half on either side of the Rolandic fissure were involved, the nicety of delicate cerebral localization technique was dispensed with and a horseshoe shaped flap of three inches width was turned down and fixed with one stitch to the integument beneath, to keep it out of the way of the operator. A large button of bone was then removed and the opening enlarged by the rongeur to a size corresponding to nearly that of the scalp flap, a little over three inches in diameter and heart shaped. Palpation through the meninges showed great resistance over the region corresponding to an inch each side over the upper third of the Rolandic fissure. Below this region the resistance was normal. On opening through the meninges there was found absence of pulsation over the region corresponding to the part offering great resistance to palpation, and slight pulsation below the region.

Faradization with a double brain electrode over the dense tissue was followed by no muscular response, but at the lower margin of this tissue, and on down the Rolandic marginal convolutions, there was responsive contraction of arm muscles, increasing as it distanced the dense tissue. Macroscopically the dense tissue presented a yellowish color and bulged into the wound. On digital exploration a tumor of considerable dimensions was found extending down into the brain and readily separable from it, a few slight adhesions of the tumor capsule alone offering any barrier. After outlining the free borders of the growth, a firm pedicle was found attached to the skull, or falx cerebri at the region of the superior longitudinal sinus. The tumor was "shelled out" quite readily with the fingers leaving the firmer portion, the pedicle, which was removed with a strong curette after cutting the skull away up to it with the rongeur forceps. A large rent in the superior longitudinal sinus was necessarily made on removing the pedicle, which necessitated firm packing with iodoform gauze of the whole intracranial wound. This readily controlled the hemorrhage, which was enormous for a few seconds; but it prevented the satisfactory closure of the wound with the return of the bone chips. The regular antiseptic dressing was applied and was not disturbed for three days, when the bulk of the gauze dressing was removed, leaving only one small piece over the rent

into the sinus. At the second dressing, four days later, the remaining piece of gauze was removed.

Slight constitutional disturbances followed the operation; temperature 101° ; operation fever for thirty-six hours followed by a decline to normal on third day. There was complete motor paralysis of arm and leg for twenty-four hours following the operation, at the end of which time slight motion returned to leg, and nineteen days later some motion was observed in the arm. Slight but steady improvement has occurred since that time. Although we expected from the origin of the tumor that sensation and motion would return in the arm first, as a matter of fact they returned promptly in the leg and later in the arm. Sensation was first felt in the shoulder muscles, the next day he could move the arm and on the third day he could draw up the forearm; and now he has good control of the whole arm except the fingers. He has no power and but little sensation in the fingers. He tells me that he is capable of exercising some muscle or making some new movement each day. The patient is now able to sit up and is permitted to walk a little and is anxious to return to his home in time for Christmas.

The packing prevented the accurate suturing of the scalp; there was an opening of perhaps two inches through which the ends of the strips of gauze were drawn out. At the end of a week these edges were freshened and resutured. Now we have a small opening of half an inch through which I keep a small strip of gauze for capillary drainage. There is granulation tissue covering the wound, and the patient has practically recovered.

In regard to the character of the tumor the specimen was submitted to the Pathological Laboratory of the College of Physicians and Surgeons. The examination was made by S. J. Sornberger and Prof. Evans. Under microscopical examination, both of the longitudinal sinus, that is the pedicle of the tumor and the tumor itself, the following characteristics are presented:

1st. An abundant fibrous stroma, alveolar in appearance.

2d. An abundance of endothelial cells, both large and small. These cells are in places crowded together in dense concentric masses, while others are scattered profusely among the fibers of connective tissue.

3d. Calcareous granules, quite abundant, distributed throughout, but rather more abundant in the small tumor from the sinus, and near its upper margin.

Diagnosis. Endothelial fibro sarcoma.

One week later the wound had firmly cicatrized, and the patient returned home.

REMARKS: As you examine the tumor which I now submit to you for inspection, you will observe that it is cone shaped, bearing a striking resemblance to a small pine cone, although somewhat more irregular in outline. It weighs exactly two ounces, its vertical diameter is two and one half inches and the transverse diameter two inches. The base is smooth and slightly depressed in the center where it was plucked from the stem or pedicle. The surface presents a papillomatous appearance, small finger like or tuberos processes extending downward and outward in all directions, but more marked around the apex of the tumor. If we invert it and place it in the same position it occupied in the brain you will observe that it grew downward and forward from its point of origin in the wall of the logitudinal sinus into Rolandos fissure, displacing the paracentral lobules, and the surface irregularities are probably due to the varying amount of brain resistance to the ongrowth of the tumor. Some portions of it lying in the great fissure and the smaller projections pushing in between the convolutions. The reaction under the double brain electrode may be explained in part by the atrophy of the adjacent portions of the brain or motor cells from pressure, and in part by mechanical displacement. We would infer that the failure to elicit reflex spasm by electric stimulation of the leg center was due to mechanical displacement of the center upward and backward by the tumor. When we find that the removal of the tumor was followed by a prompt return of sensation and motion in the leg, while the slower return of the same functions in the arm speaks for pressure atrophy of the motor cells of the arm center.

240 WABASH AVENUE.

OPERATIVE TREATMENT OF DIPHTHERITIC LARYNGEAL STENOSIS.

By W. K. JAKES M. D., CHICAGO.

Stenosis of the larynx is one of many conditions which may cause diphtheria to result fatally. Tracheotomy and intubation are the only operative methods of treating this condition now recognized by the profession. Both have their earnest advocates, each operator depending entirely upon one operation or the other. In England tracheotomy is preferred, while intubation has the preference in America.

Until recently, tracheotomy was the only operative method of treating laryngeal stenosis. When intubation was introduced, the American profession seized upon the new operation and attempted to make it a complete substitute; while the English with their characteristic tenacity clung to the older operation.

Both these operations are intended to relieve dyspnoea, due to laryngeal stenosis, yet they differ in many respects from each other. A larger experience indicates that each operation has its place in the treatment of this condition. An operator should be familiar with both and thus be able to recognize at once the conditions most favorable for each operation, and to select the one best adapted for each case.

The per cent of recoveries in tracheotomy and intubation are nearly the same, but the conditions under which the two operations have been performed lessens the value of comparative statistics.

A large proportion of the tracheotomy cases come from hospitals where every possible facility for operating and nursing is at hand; while the records in intubation are nearly all (in America) made up from cases in private practice with their usual varying surroundings. If intubation cases could have had the same skillful after-treatment as the tracheotomy cases, the per cent of recoveries would certainly have been larger.

Lack of preparatory knowledge and skill in the operators has had much to do with the disuse of intubation, especially in hospitals. Tracheotomy is a surgical operation. It is described in the text books; in the dissecting room the student performs it on the cadaver; he sees his superiors do the operation in the clinic; when the opportunity comes he does the operation himself and does not find it difficult.

But a different knowledge is required for intubation, and the

surgeon who undertakes the operation without going carefully over the whole subject, will have results that will cause him to lose faith in the operation.

Out of the first nine cases of intubation in St. Thomas' Hospital, London, eight died. The operation was then discarded; but later the same operator took it up with the result that all of the next nine cases recovered.

Before any physician should attempt the operation, he not only should have practice under a skillful operator, but should give the whole subject the most careful study. Unless a physician has done this he had better take his chances with tracheotomy.

All operative methods should be based upon the pathology and tendency of the disease. Recent bacteriological investigation has given us facts which throw some light on the manner of inoculation and spread of this disease. Professor Welch, of Johns Hopkins University, and others who have been investigating membranous croup, have found that it is usually diphtheritic. In one case, careful examination was made at the time of intubation with negative result. After the death of the child a second examination was made with the same result. Portions of the membrane were placed in proper culture medium; in forty-eight hours the Klebs-Loeffler bacilli began to appear and were soon present in great numbers. This would indicate that primary inoculation in membranous croup is caused by the spores. It also furnishes an explanation for the different manner in which the disease progresses. Sometimes a child's throat will be sore several days before a membrane appears; and again, it is found upon first examination. In the first case the inoculation is by the spores, and in the second by the bacilli themselves. When spores light upon a predisposed portion of the respiratory tract, they penetrate the mucous membrane causing local inflammation. As soon as the bacilli develop they produce the tox-albumen and necrosis. Spores are now produced in large numbers and if suitable conditions exist, auto-infection results.

In order that the inoculation of diphtheria, scarlet fever and other contagious diseases, shall take place, two things are necessary: first, the presence of the poison; second, a suitable condition of the tissues for its introduction. Children are daily exposed to these diseases and escape infection. Again a child with a susceptible throat takes the disease with the slightest exposure.

In diphtheria the disease attacks that part of the respiratory tract which is susceptible; usually the tonsils, larynx, pharynx or

naso-pharynx, and often remains there, the other parts of the respiratory tract not being in condition to take the disease. Hence, the treatment of diphtheria operative or otherwise, should be based upon these facts, the object being:

First, to neutralize the poison and to confine the disease if possible, to the primary seat of inoculation.

Second, to support the vitality of the patient and prevent the adjoining respiratory passages from becoming susceptible. That operation and medication should be selected which will best admit of carrying out these principles.

In malignant diphtheria, where the primary seat of inoculation has been in the upper respiratory passages and stenosis is secondary, tracheotomy is the best operation. The reasons for this are:

First, the air enters the respiratory passages below the disease and goes into the lungs pure, making auto-infection less likely.

Second, the pharynx and naso-pharynx can be better cleansed than if an intubation tube is in the throat.

Third, in this class of intubation cases, feeding is very difficult, but in tracheotomy it can be done quite well by passing a catheter through the nose.

Fourth, rest is a most important thing in the treatment of inflammation; and not a small item in favor of tracheotomy is that the diseased parts are at rest.

If intubation is performed upon such a case, even by the most skillful operator, the parts are likely to be lacerated; the tube will cause more or less irritation or coughing; the gasping draws poison laden air into the lungs, already made more or less susceptible by the labored respiration, and the condition known as "cut-throat" lung is the result.

A large majority of the cases of laryngeal stenosis die from the spreading of the disease downward, and in every case that operation and treatment should be selected which will render this the least likely.

When we have reason to believe that there is loose membrane in the trachea, tracheotomy is considered by many as safest for the following reasons:

First, during the insertion of the tube in intubation, the membrane may become detached and be pushed in front of the tube; this danger, however, has been overestimated.

Second, the membrane may become loose and act as a valve

over the end of the tube, allowing the air to enter but not to escape, thus causing the chest to become barrel shaped.

Stenosis caused by or following scarlet fever is best treated by tracheotomy. In these cases there is usually a great deal of odema; the tissues are swollen and introduction of the tube is difficult. In this class of cases, intubation has a death record of almost one hundred per cent.

It is undoubtedly true that both tracheotomy and intubation have been deprived of their best results by delaying the operation. The sudden attack of the disease, the lack of operating experience in the attending physician, combined with the unreasonable fear of the operation on the part of the parents, causes operative methods to be left as a last resort.

In tracheotomy, it is much better to decide on the operation before the stenosis becomes alarming. Then a guarded amount of chloroform may be given; the parts carefully dissected down to the trachea and all bleeding parts secured before this is opened, thus avoiding getting blood in the trachea, which nearly always occurs in a hasty operation.

The usual tracheotomy tubes are curved, corresponding to the segments of a circle, so that the inner tube can slip in and out of the outer tube. When secured in place, this causes the tube to press the lower end backward, very often producing ulceration of the posterior wall of the trachea. This is best prevented by using the Durham tube which has a shorter curve and a jointed inner tube. The objection to this tube, however, is that it is too large and cumbersome. I have prevented the backward pressure in the ordinary tubes by putting a rubber diaphragm over the retaining piece and slipping it back as far as the tissues will permit. This grasps the tube firmly, at the same time giving it all the movement required.

Experience has shown that tracheotomy on children under two years of age is fatal, while intubation saves from twenty to forty per cent. Some operators intube in all cases with the intention of resorting to tracheotomy in case of failure, but this has proven disastrous. The ordeal of the two operations exhausts the patient beyond recovery.

It is stenosis from primary laryngeal diphtheria to which intubation is best adapted, and when one is certain this is present, the sooner the operation is performed, the better. The air passing through the diseased and constricted parts irritates them and increases the inflammation. A proper sized tube skillfully inserted

will cause but little irritation, at once relieving the dyspnoea and lessening the chances of the disease spreading.

Intubation is comparatively a young operation, but it is remarkable that so little change has been made in the original instruments. In the sets of instruments now manufactured there is not sufficient variety in the size of the tubes.

In children, the trachea differs as much as other parts of the body, and there is often too great difference in the size of the tubes. Much of the success of the operation depends upon a proper sized tube; if too large, it will cause irritation; if too small, there is danger of it slipping down the trachea during a spasm, or when extracting. The scale accompanying the sets indicates the size of the tube only approximately. I have had to vary from this, sometimes using a tube a year younger or older than was indicated. In one case a four-year-old tube was too large, while a three-year-old tube slipped down the trachea during extraction and nearly caused death.

A set of instruments should contain at least seven tubes, with the least difference in sizes among the smallest tubes. Then the operator can make a better selection, and will also be prepared for several cases occurring at the same time.

Too much prominence has been placed upon the introduction of the tube, and too little on the after-care of the case. That its introduction requires skill, judgment and experience, is certainly true; but after the tube is in the larynx, there may arise conditions which will demand as great or greater skill than was required for its insertion.

Intubation begins when the tube is introduced, and ends when it is finally extracted. During the five to seven days which this usually requires, the child should not be out of the reach of skilled hands. Other things being equal, the operator who makes the best provision to meet the conditions that may suddenly arise, should have the best results.

William Perry Northrop, in his excellent article on intubation, in Keating's *Cyclopedia of the Diseases of Children*, makes two statements to which I wish to call attention. One of these is that parents make no objections to the operation; and second, that no trained assistants are required. I have met with the most vigorous objections from parents, and in two cases the children were allowed to die without the operation. In one of these cases the father had witnessed an unsuccessful attempt by an unskilled operator to perform the operation on a neighbor's child and was

prejudiced against the operation. The refusal in the other case was due to ignorance.

The statement that no trained assistants are required is misleading, and because of the eminence of the authority should be corrected. Many of the failures in intubation have been due to the unskillful aid given the operator either during or after the introduction of the tube. In an emergency a laparotomy may be performed and be successful, but the record of fifty consecutive laparotomies without a death only comes from an operator with the most faithful attendants to support his skill.

The after-care of a case of abdominal section is child's play compared with the work of caring for an intubation patient. When feeding often taxes the ingenuity of the most experienced attendant; when medication is so difficult and important; when it is so necessary for the safety of others to confine and disinfect the discharges; and when to all this is added the conditions which may require the instant withdrawal of the tube, it is certainly a mistake to say that a trained assistant is not required.

Parents and members of the family are nearly always poor nurses. It is surprising how many of these cases occur among spoiled children. It is an unfortunate time to teach obedience, and if the parents have failed to exact it when the child is well, their failure will only be more certain at time of sickness.

In the doctor's absence the parents, in an uncertain, frightened way, try to carry out his instructions. As a result, they either do not half accomplish it, or give up the attempt. Many of the failures resulting from the widely differing methods of treating diphtheria are largely due to the uncertain nursing and the imperfect application of these methods.

If diphtheritic patients could be placed in a hospital where scientific methods were not only instituted but carried out, the results would soon justify one definite course of treatment.

Every city should have a diphtheria hospital. This, as well as other contagious and infectious diseases, should be placed directly in the care of the health department. Isolation should be demanded, and when people are poor and living in a manner that this is impossible, the sick should be removed to a hospital where they would not be a source of danger to others.

At present we are obliged to do the best we can with these patients in their homes. A case of laryngeal stenosis is grave enough to demand for the operator every possible aid, and this

should be insisted upon when the circumstances of the patient will permit.

As nurses do not get this kind of training in the hospitals, it is necessary that they have a special course of instruction under the operator. Usually an operator can form a class in intubation from senior students, from which he can select his assistants. Medical students have a double interest in these cases—present compensation, and experience for the future; and they make good assistants.

With a better selection of cases, and skillful operators, with attendants who are competent to meet every emergency, intubation will show a better record in the future than in the past.

A recapitulation of the foregoing will result in the following brief and convenient summary of the cases suitable for operation:

INTUBATION.

First. Stenosis, from primary laryngeal diphtheria.

Second. Non-membraneous laryngitis.

Third. All cases under two years of age.

Fourth. Stenosis from measles.

Fifth. All cases in which tracheotomy is refused and intubation permitted.

TRACHEOTOMY.

First. Secondary stenosis in malignant diphtheria.

Second. When there is membrane in the trachea.

Third. Stenosis in scarlet fever.

4300 COTTAGE GROVE AVE.

INDURATION AFTER LOBAR PNEUMONIA.

BY LUDWIG HEKTOEN, M. D., CHICAGO.

Sometimes lobar pneumonia does not end with the crisis, or the critical symptoms are atypical, and there follows an irregular fever, debility, and continued consolidation; the symptoms may gradually disappear and signs of chronic interstitial pneumonia may come on.

In the early fatal cases there will be found retained exudate and diffuse interstitial changes. A few weeks after the onset of the pneumonia, the invaded portions are usually found heavy, solid, firm, dense and elastic; the cut surface is smooth and homogeneous, of some shade of red or gray; there is usually much thickening of the pleural layers.

The microscopic changes consist in the main of retention in the alveoli of part or all of the degenerate exudate and of diffuse connective tissue proliferation; masses of granulation cells in the process of development into fibrous tissue may be found in the alveoli. By Orth the whole process is regarded as analogous to the changes which occur in the substitution of a thrombus by connective tissue from the vessel wall.

In many cases the bacteriologic examinations had been negative pneumococci and streptococci had been found by Fraenkel and by Zano.

Inasmuch as retention of the exudate was invariably present in the cases examined within some weeks after death, it was of interest to note that the following condition may retard the removal of the exudate after the commencement of resolution. Constitutional debility of all kinds, local conditions such as firm and extensive adhesions, pleurogenous inter lobular thickening, anthracosis and fibrosis of the regional lymph glands these conditions, singly or combined have been thought to be sufficient to prevent, on account of mechanical reasons, the removal of the softening exudate.

Delayed resolution with final restoration may also follow pneumonia and here there has always been observed some degree of connective tissue proliferation in the few instances examined post-mortem.

While the retention of the exudate may constitute sufficient chronic tissue irritant to cause the diffuse interstitial changes, yet it is not impossible that the interstitial changes may commence very early in the attack, that the exudate may be retained on account of the fibrosis and not vice versa.

Delafield does not believe that fibrinous pneumonia can terminate in fibroid induration; he believes that these cases are exudative and proliferative from the start and that they are instances of a novel form of pneumonia. It does not seem rational to dismiss the belief that all cases of induration in pneumonia are examples of a strange disease on the insufficient demonstration of Delafield.

Induration was found once in Osler's one hundred pneumonia post-mortems. Wells observed it two times in 498 clinical cases; Andral once in 112 cases. The case described in the paper was the only one of this kind observed in 120 cases of pneumonia examined post-mortem in the Cook County Hospital during the last four years.

CASE: Man, fifty years, with a good family and previous history, was taken sick March 26, with weakness and coughing. On March 29, there were present all the signs of pneumonic consolidation over the entire right lung. This consolidation remained unchanged from this time up to the 7th of May, when he died; from the 4th of April to the 20th he was up and about; from the last date little or no nourishment was taken. There was some slight fever all the time.

The right lung weighed 1,150 grammes, the left 450. The adherent pleura over the right lung measured in places, five c. m. in thickness; the lung was solid and hard; on the cut surface it was light gray, homogeneous, smooth, and elastic, there was a pleuritic sacculation between the lung and the diaphragm containing thirty centimeters of pus and there were a few small foci of softening in the lower lobe. There were no signs of tuberculosis. The bronchial glands were large, calcareous in one place and anthracotic. In the heart and liver were found senile atrophic changes, and in the kidneys slight evidences of acute and chronic inflammation.

The microscopical changes were diffuse and consisted of degenerate, fibrinous alveolar exudate and luxuriant connective tissue proliferation; the alveolar spetheleum was usually absent and in many places the alveoli contained masses of spindle shaped cells and also multinucleated leucocytes and black pigment masses. Smear preparations showed degenerate lanceolate micrococci and empty capsules; in the sections stained with Weigert's method for fibrin, were found a few characteristic encapsulated diplococci. Tubercle bacilli were not found. Short lived cultures containing cocci irregularly arranged sometimes in twos in a faint capsule were obtained in glycerin agar.

Clinically the general symptoms were mild compared to the extent of lung involved. Crisis was not observed and the consolidation continued for forty-three days. After death there is found a degenerate fibrous exudate, luxuriant connective tissue changes, fibrous pleuritis, anthracosis of the regional lymph glands, and senile changes especially in the heart. The only microbe met with seems to be the micrococcus lanceolatus. For these reasons the conclusion that the interstitial changes described stand in direct connection with the retention of the exudate after a fibrinous pneumonia involving the right lung and due to the micrococcus lanceolatus seems fully warranted.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. JOHN A. ROBISON, WILLIAM T. THACKERAY, EDMUND J. DOERING
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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THE CHICAGO MEDICAL SOCIETY.

The adjourned meeting of November 20, was held at Orpheus Hall, Nov. 27, 1893.

Second Vice President, Dr. Moyer, in the chair.

The minutes of November 6th were read and approved.

The Committee on Membership reported favorable on the applications of Drs. J. R. Pennington 2222 Michigan Avenue; J. P. Houston, 296 E. Erie Street; Isabelle F. Taylor, 2211 Michigan Avenue; D. A. Payne, 1000 W. Madison Street and G. S. Gfroerer, and on motion they were elected by acclamation.

The applications of Drs. T. A. Menge, E. B. Tuteur and H. F. Wood were read and referred to the Committee on Membership.

Dr. O. N. HUFF gave a synopsis of the paper read by him at the meeting of November 6th, and exhibited charts. The same was also done by Dr. A. R. Reynolds who exhibited maps of the city. The discussion of the two papers was then resumed.

Dr. A. J. OCHSNER: The chart which Dr. Reynolds has placed before us shows that 4,500 lives were lost within three years from a cause which is practically avoidable. Some of these cases of typhoid fever of course have come through bad drainage of houses and those are in a measure due to accident. In a city

in which there are constantly patients suffering from typhoid fever, the sewage cannot be, or at least is not thoroughly disinfected in every instance. The microbes of typhoid fever have a most favorable field of nutrition and the best possible opportunities to thrive in a place where they can do the most harm, namely, in the water which we drink. According to this chart there were 4,500 deaths during three years, which means that about 25,000 patients suffered from typhoid fever during this time. Counting the expense of each case at the very low figure of \$100, we have as a practical problem before us \$2,500,000 expended in the care of typhoid fever by the people of this city. Then counting the value of each life at what a railroad company would have to pay for it we would have another loss of twenty-five million dollars.

These deaths are not simply avoidable by carrying the water down the channel, or by buying water to drink, or by bringing water from a greater distance, but they are avoidable by boiling the water. If all the water used by the people of Chicago were boiled, as is done in some of the older countries, especially the Chinese cities, where they have the worst possible water, the typhoid fever causing all these deaths and expenses might have been avoided. If there were a uniform idea throughout this city to the effect that no one should drink this water, because it is absolutely bad the greater portion of the time, and extremely bad sometimes, a large proportion of these deaths could be avoided.

If the health department had a competent bacteriologist to make plate cultures and would give to the daily papers every day the number of microbes to the cubic centimeter, or rather to the pint, this would impress the people with the fact that they were drinking too many living organisms. The last time I heard of any such examination being made there were to each pint of water one and a fourth million of living microbes.

Many of the large factories and business houses in the city have supplied their establishments with sterilizing apparatus and furnish their employees with water which does not contain the germs of typhoid fever; and they find that it is an exceedingly profitable investment. I have been told by a number of firms who have done this, that their loss and annoyance from sickness caused by typhoid fever was very much greater than the expense of maintaining such sterilizing plant. Again, all the children that attend the public schools, no matter whether they drink sterilized water at home or not, are exposed to the necessity of either going without water, or drinking typhoid fever water in school. Our school com-

missioners should supply each one of our public schools with an apparatus which would sterilize the drinking water for the school children.

Dr. ADOLPH GEHRMANN: I wish to say something in close connection to what Dr. Ochsner has suggested, and which was also suggested at the last meeting of the society, namely, that some provision should be made for the proper examination of the water, so that direct and accurate data could be readily placed before the public, and might be used in promoting such changes as would be of value in improving our water supply. You remember that last January the City Council provided a bureau of milk inspection for the regulation of the milk supply to the city. This bureau had an entirely independent existence until well along in the summer. When Dr. Reynolds became Commissioner of Health, he at once saw that the value of the work of this department could be greatly enhanced, and that other questions could be investigated by the same men with very little additional expense. This could be done by making the milk division a part of the Health Department, so that they could work together and the milk department receive the support of the Health Department. The amount of engineering that was necessary to bring about such a change; the amount of demonstration necessary to show aldermen that such a change would be of value and that nothing would be lost by it, can be little understood unless one is familiar with the difficulty of promoting such a subject; but by September 18th, the matter had reached such pressure that the City Council passed a new ordinance, which united the milk division to the Health Department, and in addition created a municipal laboratory. This union has now been fully made, and provision is being made for the laboratory. I have Dr. Reynolds' permission to say, that the laboratory is being equipped and before long will be ready for actual work. Provisions of the new ordinance do not in any way curtail the inspection as outlined in the original milk ordinance, but they add to it the inspection of other foods, and the investigation of all general questions relative to public health. Among these of course, the water supply will be one of the first matters taken up, and regular and frequent examinations will be made both bacteriologically and chemically; as it is most important to have both, either alone is of only partial value. This examination will be made from the different inlets, in order that a just comparison may be made of the different waters as they run into the city from different distances in the lake; and in addition the water in the lake itself will be examined

at different distances and depths from the shore. The subject of filtration of water will also be taken up and studied in some detail.

Dr. HOMER M. THOMAS: I would like to say a word in reference to the fact as developed here this evening, that the present drainage canal is inefficient as planned in giving us pure water. As has been stated here, under the present arrangement there will yet be emptying into the water supply of the city something like fifteen or twenty large sewers, which of course must contaminate the water, and which the present plan for a drainage canal does not remedy. The citizens of this county and city have voluntarily taxed themselves many millions of dollars for an improvement which is supposed to thoroughly remedy this evil. The conditions existing as they do, it is certainly the part of the medical profession, in my judgment, to take such action as will bring to the notice of the drainage trustees these very pertinent facts.

I think this society ought to officially acquaint the commissioners with the fact that the present plan is inadequate and if feasible, suggest how it could be so extended as to make it possible to prevent any further contamination of the water supply.

Dr. FRANK CARY: I have insisted during the past two years with my patients, that no water should be taken from the hydrant for drinking purposes. Nevertheless I had in several families cases of typhoid fever where they had taken no water from the hydrant, drinking only sterilized water and the question came up, how did these cases originate?

When we insist that a patient drink nothing but sterilized water, it seems to me we should go further. Such articles as lettuce, cress and celery, should not be washed under the hydrant and placed before the family. Here is certainly an avenue for typhoid fever, and only by insisting that all the water used in the house should be sterilized, can we be sure of excluding typhoid germs.

Dr. J. C. HOAG: I would like to ask the essayist whether there is anything in the observed condition of the water supply from year to year which explains the difference in typhoid fever? The first cases of typhoid fever I observed were about twelve years ago when I saw a large number of them in the hospitals, and they were to a great extent the classical cases of typhoid fever. I do not see many of these of late years, and I know it is not merely my own observation but that of others. The majority of the cases now are of a milder form.

Dr. S. J. JONES: Our sources of water supply are so varied,

and it is so difficult to keep the water from each separate that it is hard to distinguish the relative danger from each of these causes. For the last eighteen months I have had personal experience of the disadvantages of residing in the northern part of the city depending upon the defective water supply of the Lake View water works, and I can appreciate what has been said with regard to the filthy condition of the water in that section of the city. Most of the time the water, even after having been boiled, is so offensive that it is not fit even for bathing purposes.

It has been shown that there is very little contamination of the water supplied by the four-mile and the two-mile tunnels, but that the contamination has been chiefly from the shore tunnel, as it is called, which is near the Chicago Avenue station. A large proportion of the cases of typhoid fever in the last few years were in the Lake View district. Its water supply is supposed to have been benefited by the limited extension of the tunnel in the last few months, but at present it is in such condition that no one should use it unless it has been filtered or boiled. Of course we all welcome the prospect that there will be something done to advise us of the relative danger of these different supplies of water. I understand that in Hyde Park it is quite as bad, and in some respects worse than in Lake View. People residing in districts where it is more dangerous should be authoritatively informed of the fact, and of the degree of the danger from that source.

While it will be a gain to relieve the Chicago River by the drainage canal, yet if these outlying points are still to have water that continues to be contaminated in the way pointed out in the report of Dr. Huff, and not contradicted, there ought to be some means of supplementing that canal, even if it should be constructed at an earlier date than there is a prospect now that it will be.

Dr. H. N. MOYER: The Chair certainly feels that we owe much to the present Health Commissioner for the able manner in which he has brought this question up. It is about time that this society and the medical men of this city should do something in this matter. I question whether there is not a grave moral obligation incumbent upon us. Has one a right to stand by and see a man murdered without calling out or trying in any way to prevent it? If one of us should see a person throw arsenic into one of our water pipes would he be justified in not making a report of it or trying to prevent it? The medical profession are peculiarly the keep-

ers of the public health but they should only act in an advisory capacity.

Dr. O. N. HUFF: The intention I had in bringing this object lesson before this society was if possible, to arouse the medical profession of this city to the real situation of affairs. As I stated in the paper, I wanted to do this while connected with the health office last winter before Commissioner Reynolds came to the office, but the authorities in charge forbade it. When I was helping to get up the annual report this thing appeared in such a vivid light that it was a complete revelation to me and I thought I would bring it before you. Do you know this three thousand foot tunnel is simply an emergency affair built within five or six years, yet I have been told by one of the most competent engineers of this city that if the two mile crib was blocked with ice, they would be compelled to use it, they could not get sufficient water without it; that not over twenty-five per cent of the water supply of this city comes from the four-mile crib. It seems to me the profession is more or less responsible for that three thousand foot crib being established at that point; the authorities, I suppose, did it as a matter of economy, they did not have money to extend it; but the medical profession, with the knowledge it has of the danger of contaminated water should have brought such pressure to bear on the authorities that they never would have stopped at three thousand feet. They claim now that they did not pump water in 1891 from that three thousand foot inlet; if that be true the situation is all the more serious, because it showed that the outer cribs were dreadfully contaminated.

As to the drainage canal, no doubt it will do a great deal of good, but the chief engineer himself says there will have to be a great additional water supply in order to fill the canal; that the volume of water in the river at the present time will only about half suffice, so that we shall be for several years subject to the same conditions we have at present.

Dr. Reynolds has very plainly shown that we have a great reduction in the death rate for this year over last year; yet we must remember the conditions this year have been unusually favorable. There have been no heavy rainfalls, no floods at any time, the wind and currents have been favorable, and the Bridgeport pumps have worked admirably, but we are still subject to a much greater contamination of the water supply than exists at present if there should be a heavy rainfall.

Dr. A. R. REYNOLDS: I feel very glad indeed that this discussion has taken place and that the society has taken such an interest in it. I believe with the society, that it is a part of the duty of the Department of Health to take some action upon all matters pertaining to the health of the city. Indeed the agitation we have made this summer has already borne fruit; it was only the other day I saw a letter from the city engineer addressed to the Commissioner of Public Works calling his attention to the fact that the investigations of the Department of Health showed that the water from the short tunnel at Chicago Avenue had been a great cause of typhoid fever and urged that money be supplied to extend that tunnel out to the two-mile crib. I think if the Department of Health is intelligently conducted it ought to be able to influence the Department of Public Work upon all sanitary questions, especially if it is strongly backed by this society.

As far as the drainage canal is concerned, if we get a proper fall from Lake Michigan south I do not think it can fail to benefit our water. Of course there yet remain the sewers that empty directly into the lake. However, it is contemplated to build intercepting sewers along the lake shore and take the sewage back into the river. It is another matter to get a sufficient supply to fill the channel for the purpose of diluting our sewage so that it may be received by the cities below us without harm.

The Department of Health will of course be very greatly strengthened by this municipal laboratory, where water, food, ice and everything people eat or drink may be analyzed and a proper record kept of it. I firmly believe that the people ought to be warned of any danger that is before them.

Dr. BOERNE BETTMAN read a paper, see page 1, entitled

“SUBVOLUTION; A NEW PTERYGIUM OPERATION.”

Dr. F. C. HOTZ: The historical review the doctor has given us of the different operations suggested for pterygium, is interesting inasmuch as it shows that a great many operations are devised on theories, instead of facts. The idea, for instance, of treating a pterygium, which is nothing but a fold of conjunctiva, like a morbid growth, is preposterous; and still operations have been devised on that very theory. The pterygium has been transplanted into the cul-de-sac so that if it persisted in growing it might grow all around the cornea but could not encroach on this membrane. The transplantations done by Knapp and others, the strangulation

by ligatures of these tissues, are founded on this idea of a morbid growth. These operations must be condemned.

I fully agree with the essayist that all operations for pterygium which destroys the tissues are wrong. These tissues can be utilized very successfully to avoid denuded surfaces on the eyeball, and the material at our disposal with which to cover defects of the ocular conjunctiva is so limited that we should not unnecessarily excise any tissue. I therefore do not follow the precepts of most writers who advise to dissect the pterygium off the cornea, and then to excise corneal and scleral portion by two cuts converging toward the caruncle. I cannot see any reason to justify the removal of these tissue folds; for as I said before, the pterygium is a portion of the ocular conjunctiva.

It has been shown by Prof. Fuchs that its formation is preceded by an inflammation of the episcleral connective tissue in the vicinity of the nasal border of the cornea; and that this inflammatory process invades the cornea proceeding from the nasal border toward the center and creating in the place of the epithelium and Bowman's membrane, a layer of new cellular tissue; later this new tissue assumes the fibrillar structure of connective tissue, and its contraction draws the ocular conjunctiva over the corneal margin; as this traction converges toward one point in the cornea the ocular conjunctiva is gathered up, as it were, toward this point, and this explains the peculiar fan shaped and pleated appearance of the pterygium.

Now, when the pterygium has been carefully and completely severed from the cornea so that you can draw it a little away from the eyeball in stretching the ocular conjunctiva, you can look under it and see the strings of connective tissue which have drawn the conjunctival folds toward the cornea. As soon as these strings are cut with a scalpel gently passing over the under surface of the pterygium, the pleats disappear, the conjunctiva gets smooth; but at the same time it recedes from the corneal border. There is, therefore, even without exercising any particle of the pterygium, a larger or smaller area of denuded sclera. In moderate size defects of this kind it is not difficult to bring the edges of the conjunctiva together and close the wound with two or three sutures.

If this cannot be done without too much tension, if I fear the sutures will cut through too soon and the wound will not heal by first union, I make no attempt to close the gap in the conjunctiva, but fill it with a small Thiersch skin graft taken from the arm. If

this grafted skin shaving heals on the sclera, it looks white like the sclera, and forms a firm barrier defending the cornea against a reinvasion of the conjunctiva and thus making the recurrence of the pterygium an impossibility.

I have only this to say of the operations suggested by Dr. Bettman, that if it prevents the conjunctiva from being drawn over the cornea again, it does not, if I understand him right, remove the cosmetic blemish, which is an important consideration of such an operation. It is done not alone to free the cornea from the conjunctiva, but also to remove the unsightly red, vascular and pleated appearance from the inner portion of the eyeball. As I understand Dr. Bettman he contents himself with dissecting off the corneal portion and slipping it under the scleral part; he does not lift it up and sever with knife or scissors the subconjunctival adhesive bands so as to allow the scleral portion of this conjunctival fold to unfold itself and become smooth. It seems to me the unsightly appearance of the pterygium is not removed by this operation.

Dr. HENRY GRADLE: I have had no experience with Dr. Bettman's operation, but would ask the questions: First, how many cases have you had, and have you seen any relapses. Second, how long does it take before the triangular spot loses its vascular appearance after the implantation?

Dr. BOERNE BETTMAN, in closing the discussion said: I am glad Dr. Holtz is present so that he can throw light on his own operation which I have unfortunately misrepresented. I have never done the operation myself, but I have no doubt it answers the purpose. I probably did not express myself as clearly in my paper as I should have done. I do loosen the adhesions Dr. Holtz referred to and the flap does retract a great deal, and this is the reason I stated that it is expressly indicated for large pterygia, as the apex of the flap does not retract beyond the corneo-scleral margin. In those cases where there is a small flap which retracts a great deal I have found by subvoluting it that there is a space between the mucous roll and the corneo-sclero margin, adhesions form and the turned under pterygium is thereby drawn up to the corneo-scleral margin but no farther.

As to the questions asked by Dr. Gradle, I will state that in the last six or seven years I have made at least twenty-five and possibly fifty of these operations. The great majority were at the Eye and Ear Infirmary. I had occasion to make this operation about four weeks ago on a man who had two pterygia on one eye

and one on the other. I operated on the 3 during one sitting; at first, it left an unsightly thickening but this gradually disappeared until it settled down to the level of the remainder of the conjunctiva. I have seen some cases operated on a year ago where there is hardly any thickening present and the large blood vessels have almost entirely disappeared. I have not been able to see all the cases operated upon after the operation because most of the patients treated at the institute after dismissal are rarely seen again, so if any relapse occurred I am not cognizant of it.

Two petitions to Congress, the first relating to the establishment of a National Bureau of Public Health, the second to the abolition of import duties on drugs were read and referred to a committee comprising Drs. Hamilton, Reynolds, and Rauch.

The remainder of the programme was deferred to the next ensuing meeting.

There were thirty-four members and visitors in attendance.

On motion, the society adjourned.

JUNIOUS C. HOAG, Secretary.

A regular meeting December 5, 1893, was held at Orpheus Hall.

Vice President Moyer in the chair.

The minutes of the preceding meeting were read and approved.

The Committee on Membership reported favorably on the applications of Dr. H. F. Wood, 1728 Michigan Avenue, E. B. Tuteur, 3553 Prairie Avenue and F. Menge, 154 E. 42d Street, and on motion they were elected by acclamation.

The application of Dr. E. B. Tienen was read and referred to the Committee on Membership.

Dr. F. E. WAXHAM read a paper entitled

A PLEA FOR THE EARLY CLIMATIC TREATMENT OF PULMONARY
TUBERCULOSIS.

The paper was illustrated by three charts. See page 10.

Dr. H. M. Thomas read a paper, see page 379, on

PHARYNGO-MYCOSIS.

Dr. W. E. CASSELBERRY: I am glad that Dr. Thomas has brought this matter before the society because, as has been, stated

the disease is usually mistaken for a follicular pharyngitis. At the time Dr. Hemenway read his paper two years ago, it had been practically unnoticed, at least for many years by this society. The disease while not very frequent still occurs often enough to bring it under the observation of physicians at reasonable lengths of time, and it is quite necessary that it should be recognized, for otherwise disappointment is certain to follow efforts at treatment. I notice some difference of opinion regarding the particular micro-organism that may occasion the disease. Dr. Hemenway described a new organism which he named the bacillus fasciculatus to which he ascribed his case, and he called attention to distinguishing points between this bacillus and the leptothrix buccalis to which the disease is usually attributed. It would seem probable that microorganisms other than the ordinary leptothrix are capable of originating what we call mycosis of the pharynx. This view is also supported by the varying descriptions of the physical appearance of the growth; we have just heard that it is apt to be hard and horny, although sometimes softer. In most of the cases I have observed it has been rather soft but gritty and not always so adherent as has been described. We know from the somewhat analogous parasitic disease of the external auditory canal and tympanum due frequently to the various forms of aspergillus, that this microorganism is not the only parasite which will occasion otomycosis. In fact, not less than thirty-four different microorganisms have been described as causing otomycosis and I think it exceedingly probable that more than one microorganism occasions pharyngo-mycosis.

Concerning the diagnosis: The persistency of the formation of the concretions, their grittiness and adherency have been my chief guides. Absence of inflammation is usual, but not invariable, for just as the ordinary cheesy tonsillar concretions familiar to every one, may predispose the subject to acute inflammatory attacks, so pharyngo-mycosis might be expected to do the same.

The treatment depends upon the accessibility of the part. The reason why germicides have been ineffective in this disease is because they cannot well be brought to the actual seat of the affection; it burrows into the crypts of the tonsils and secures a depth of lodgment impossible to germicides applied locally, and the success of the galvano-cautery depends on its power to destroy deeply the lymphoid tissue and the galvano-cautery destroys it, together with the germs growing therein. But I have not always resorted to this means, especially when the tonsils were not much

enlarged. I have cut the divisions between the crypts so as to permit access, to the parts and have then curetted out the accumulated masses, and subsequently sprayed the part forcibly with peroxide of hydrogen. This is the only chemical agent I have found to be of service. It has, I am certain, a beneficial effect under these circumstances, if it is sprayed forcibly into the crypt of the tonsil so as to get all around and behind the concretions. This failing, there is only one other thing that promises success, and that is the galvano-cautery, or other destructive agents.

Dr. J. C. HOAG: I have been very much interested in this paper; I think it is a timely one, as the subject certainly has not been sufficiently brought before the profession to enable them to recognize the cases that occasionally fall under observation. I have recently had a case, and I doubt whether I would have recognized it had it not been for a paper read before the society about two years ago by Dr. Hemenway. This case is practically identical with the description given by Dr. Thomas, it presents all the characteristics he has named; in the tonsilar crypts the fungus has an acuminate appearance, whereas on the walls of the pharynx the growth is flat and has a cheesy appearance. These growths from the lacunæ of the tonsils are very hard; they have a horny appearance. Dr. Hillmantel placed one of these growths under the microscope and stated that it had the appearance of a calcareous degeneration. In some of the lacunæ I think I have eradicated the growth simply by drawing it out with the forceps; at least, some of them have not yet reappeared. The difficulty of treatment is in getting at the growth; for instance, in my case there are several growths in the folds of mucous membrane behind the tonsil, and in places that are so inaccessible that they can only be seen when an assistant draws the folds of mucous membrane to one side. In the intervals of treatment with the cautery I used pyoktanin, but without producing any effect whatever on the growth of this fungus. I also used fuming nitric acid, which I think killed the growth in one locality. I would like to inquire in regard to the frequency of this disease.

Dr. HENRY GRADLE: It seems to me that the writer to some extent, as well as the speaker preceding me, have confounded two different troubles, viz.: the genuine pharyngo-mycosis and the accumulation of cheesy masses in the crypts of the tonsil. The latter are sometimes not easily squeezed out for anatomical reasons, as the mouth of the crypt may be smaller than its caliber. Dr. Thomas pointed out the difference, still it seems to me he

spoke of soft masses in some cases. These cheesy masses are exceedingly common, I see dozens of them in a month. The other affection is a comparatively rare condition. I have only seen three cases. But I am inclined to think that they may come under the care of the general practitioner perhaps oftener than of the specialist, because pharyngo-mycosis does not cause much annoyance to the patient as a rule and is occasionally detected only by chance, unless the patient has to use his voice professionally. The three cases I have seen were all perfectly uniform in their characteristics, the masses were tenacious and could not be removed by forceps, and the cases could only be cured by the galvano-cautery.

Dr. HOMER M. THOMAS, in closing the discussion, said: In regard to the frequency of this disease, a somewhat extensive research of the literature contained in the libraries of this city has failed to find more than twenty-three cases reported. I presume there are a great many more, but that is all that are recorded.

In regard to the possibility of confounding the specific disease, pharyngo-mycosis, with a cheesy deposit in the tonsils, the effort of the paper was to make plain the difference between these. In the microscopic examination the deposits appeared to me, in this case, to be typical of what I had read of the disease, and I tried to make plain the fact that the specific characteristic of this trouble seems to be that the ends are rounded or club shaped, and that they vary in length and curl up in hair like filaments, others like rods. That appears to be the characteristic formation of pharyngo-mycotic deposits under the microscope.

In regard to treatment. Dr. Moreau R. Brown, who saw the case I have reported, has tried pyoktanin in a case with futile results. Since the new germicide pyrozone has come to the front I think possibly it might be of great service in the intervals of the cautery seances, to repress the disease. Dr. Owsley, who had extensive opportunity for observing all forms of throat trouble in Berlin, having seen three cases of pharyngo-mycosis there, told me he would take exceptions to the treatment as suggested here, in the diffuse form of pharyngo-mycosis. He saw a case in Berlin where the deposit extended all over the roof of the mouth and over the tongue, and any attempt to cauterize such an extensive surface would be futile, but I believe he is in harmony with this treatment for the circumscribed form.

Dr. SARAH H. STEVENSON read a paper entitled

A STUDY OF PLACENTA PREVIA, ESPECIALLY THE CAUSES OF HEMORRHAGE.

Dr. PAOLI: Perhaps in all medical practice there is no greater cause for anxiety and controversy than the attachments of the placenta in the lower segments of the uterus. During my medical career, I have had three cases of placenta previa, two partial and one total. The last was that of a woman in full term with great hemorrhage. In this case I penetrated the mass of placenta and ruptured the bag of water, and found a foot presenting which I grasped and expelled a living child. After this manipulation the hemorrhage stopped, and the woman recovered slowly.

Dr. W. K. JAKUES read a paper, see page 21, on

OPERATIVE TREATMENT OF DIPHThERITIC LARYNGEAL STENOSIS.

Dr. HOMER M. THOMAS: Laryngeal stenosis of diphtheritic origin has been almost invariably fatal in my hands. The operation of intubation has been serviceable to the degree that it was permitted where the parents would not consider tracheotomy, and in a few cases it has made tracheotomy possible after the limitations of intubation had been passed, but I have not been successful in controlling cases of diphtheritic laryngeal stenosis either by intubation or tracheotomy. All such cases under my care have died, and hence I am very skeptical as to the results of anything we can do in these cases. I can understand how cases with less constitutional diphtheritic poisoning than those it has been my misfortune to be associated in the treatment of, might be greatly relieved by alleviating the embarrassment that would arise from simple mechanical obstruction. That unquestionably is secured by intubation. Also where the disease has gone lower, by tracheotomy; but the limitations of these operations are so marked in my experience that I have comparatively little confidence in them.

Dr. W. E. CASSELBERRY: The summary Dr. Jaques has given us of the conditions favorable to intubation or tracheotomy I think will be accepted by many, with the single exception that it is contrary to present practice to perform tracheotomy on diphtheritic subjects, solely for the reason that the pharynx, naso-pharynx and the nose are involved. I would not like to take that as a sole guide to the selection of the operation of tracheotomy to the exclusion of intubation. I believe, with Dr. Jaques, that there are cases, if one were perfectly free to select independently of the prejudices of the family and friends, in which tracheotomy would be superior to intu-

bation, but I believe this superiority is based more upon an age of over five or six years, than upon the involvement of the part of the respiratory tract above the larynx. I do not think that involvement of the respiratory tract above the larynx, in case a tube is put into the larynx, especially predisposes the case to extension of the disease downward. There are many cases in which it does extend downward, and the bronchial tract or lungs become involved, but in my experience they become involved as frequently after tracheotomy as after intubation. I have seen many cases die after tracheotomy where the broncho-pneumonia, causing death, took place after the operation, just as it would have done in the same case after intubation.

I would again call the attention of the society to the method of feeding in these cases. I have taken every opportunity to impress upon all who perform intubation the advantage to be derived subsequently by feeding the patient in the inverted position. I had the pleasure several years ago of devising this method and of making it public for the first time before this society. It has been followed by great success in the hands of others as well as myself, and has removed from the operation of intubation its most serious disadvantage, that of gravitation of liquids through the tube into the lungs. It is true that not every child will feed comfortably the first time by this method, but they will as soon as they get hungry or thirsty, and in the majority of cases it vastly simplifies the after treatment.

I do not think the operation of tracheotomy is necessarily excluded if one has performed an unsuccessful intubation. I recall a case at the Orphan Asylum about four years ago. The authorities of that hospital had suppressed the operation of tracheotomy because of uniform fatalities in previous years. Then came the new operation of intubation, and I was summoned there one day to perform it on a child four or five years old. Loosened membrane in the larynx was pushed down, the child became moribund, the tube was extracted, and on my own responsibility I performed tracheotomy. The child recovered.

Dr. F. E. WAXHAM: The author states that the comparative value of intubation and tracheotomy is about the same. Dr. McNaughton, of Brooklyn, recently collected the reports of a large number of intubations performed in the United States; I believe something like five thousand cases, and also the histories of a large number of cases of tracheotomy. These statistics showed that six per cent more cases recovered after intubation than after

tracheotomy ; that is, out of every hundred cases operated upon by intubation six more were saved than of those operated upon by tracheotomy. These statistics seem conclusive as showing the greater value of intubation in these cases. My own experience convinces me of the very great superiority of intubation over tracheotomy ; out of nearly five hundred cases operated upon by intubation there have been between thirty-four and thirty-five per cent of recoveries, while out of thirty cases operated upon by tracheotomy there was but a single recovery.

My experience has been that but few cases recover after secondary operations ; indeed, I cannot recall that I have ever saved a case operated upon by tracheotomy when done as a secondary procedure, and I have done it many times. I have come to the conclusion that if these cases cannot be saved by intubation, tracheotomy will rarely save them.

I would emphasize the importance the author has placed upon the after treatment and the after care of these cases. Statistics very clearly prove that recoveries are more frequent in these cases where bichloride of mercury has been given in full and frequent doses, both previous to the operation and subsequent to it. Statistics also show a better percentage in these cases where calomel by sublimation is used both previous and subsequent to the operation. The same treatment that has been instituted before the operation should be continued after it. In those cases of pharyngo-nasal diphtheria, the full and frequent use of the tincture of iron is just as essential after the operation as before, as it is also the local disinfection of the throat and nose. The matter of feeding is quite as important after the operation as before. So I would agree with the author of the paper in regard to the great necessity of the after treatment in these cases. First, the operation must be done gently and skilfully, then we must watch our cases, and we should continue to give either the bichloride of mercury in full and frequent doses or we should use calomel by sublimation, according to the Brooklyn method. We should continue the disinfection of the throat and nose, and we should continue feeding and stimulating the patient. When we have done all this we have certainly done our full duty.

Dr. W. K. JAKES, in closing the discussion, said : This summary for the use of the two operations I made largely from the opinions of men who are familiar with both. I prefer intubation, and believe it is the operation for private practice. Where the patient is in a private hospital and a physician may select just the

operation he chooses, he can select tracheotomy if deemed best. But the point I wish to make is that after these desperate cases, for they are all desperate where tracheotomy is the best operation, are weeded out, intubation will certainly make a very much better record. As to comparative statistics, the operations are so different and done under such varying circumstances that I cannot see how comparative statistics can be as valuable as if they were placed side by side in a hospital and the same care and nursing given to each case. I have had the good fortune in my later operations to have the nurse who received her training under Dr. Waxham, and I cannot emphasize too strongly the importance of the after-care in the treatment of intubation. It is always a satisfaction to me to know that when I am away from a case there is some one there who can handle it as well or better than I can. I wish to emphasize another point Dr. Waxham mentioned; that is, the sublimation of calomel. Twenty to forty grains of calomel is sublimed on a hot shovel under a sheet-tent in which the child is placed and the fumes inhaled from twenty to thirty minutes. Within the last two weeks I have had two cases where I expected to operate and staid with the patient all night for that purpose, when the inhaling of these fumes made operation unnecessary. I think the way it acts is that the fumes pass along the respiratory tract until they strike the constricted portion of the larynx, and the application is made just where it should be made. I have had great success so far with this method.

On motion, a committee comprising Drs. Brower, Ochsner and Thomas, was appointed to confer with the various directories for nurses with a view to their abolition in favor of the Chicago Medical Society Directory for Nurses.

On motion the Secretary of the society's Directory for Nurses was authorized to send out circulars advertising the directory.

There were forty-five members and visitors in attendance.

On motion, the society adjourned.

JUNIUS C. HOAG, Secretary.

A regular meeting was held at Orpheus Hall, Dec. 18, 1893.

President L. L. McArthur made brief remarks touching the recent death of Dr. Earle, and then called the meeting to order.

The minutes of the preceding meeting were read and approved.

The Committee on Membership made no report.

The applications of Drs. Bertha Van Hoosen, Richard B. Olson, H. T. Godfrey and F. Gurney Stubbs were read and referred to the Committee on Membership.

Dr. HENRY GRADLE, read a paper, see February RECORDER, entitled

“CAUSES AND TREATMENT OF SICK HEADACHE.”

Dr. W. F. COLEMAN: Dr. Gradle has so well given the experience so far as eye-strain is concerned as a causative factor in migraine that I think very few oculists will feel disposed to dispute his premises. The attention he has drawn to nasal and intestinal causes will be instructive to oculists. I sent a circular letter to some 300 of my patients who had complained of weakness in their eyes; their answers show that sixteen per cent had headache and forty-eight per cent had headache and eye pain; making sixty-four per cent having headache. In answer to the question of relief by the glasses prescribed, the answers as tabulated showed that fifty-six per cent out of the sixty-four were completely relieved for a period of time, from three months to three years. Of course, I cannot say statistically how large a number may have had migraine but I have a distinct recollection of several of the number who were relieved of migraine. I believe as Dr. Gradle does that the cause of migraine is almost exclusively refractive trouble, but he did not mention insufficiency of eye muscles. Some neurologists lay stress upon this factor as the only cause, and the treatment consists in tenotomy. I had a letter to-day from a lady who consulted me a month ago. She had no error of refraction, but her eye muscles had been operated upon twelve times by five different surgeons. At first she had a slight tendency to divergence but without any diplopia, with attacks every few weeks of severe migraine. Each external and internal rectus muscle had been tenotomized once or oftener. The result is that she has abduction four degrees, and adduction fourteen degrees and she cannot converge nearer than sixteen inches without diplopia. This is the blissful state in which she is left. She urged me to operate again but I declined. If we treat the refraction these muscles will take care of themselves.

Dr. ARCHIBALD CHURCH: I feel like reinforcing as far as I am able the essayist's reference to the relation between migraine and astigmatism. I do not believe that any case of migraine is adequately treated until the eyes are thoroughly investigated and, so far as possible, any deviation from a practically normal eye is

removed. The relation between migraine and epilepsy is perhaps a little more intimate than we would be led to suppose by the paper. There is a generic relation between epilepsy on the one hand and migraine on the other. We often encounter, for instance, a mother who is neurotic or migrainous, one daughter hysterical, and another child with epilepsy. I have never seen a case of migraine result in epilepsy, but I have seen epileptic patients who had migraine.

Remedies directed toward inducing a proper circulation are the ones which ordinarily give relief; hot applications to the extremities, hot baths, nitrite of amyl and even morphine in my experience are sometimes capable of producing immediate benefit, and in some instances of aborting the attack.

The principal point to be kept in mind in this connection, is the fact that migraine is a manifestation of an unstable nervous condition and is a mere symptom. Given a case of migraine the supposition is at once to be entertained that you have to do with a neurotic individual, and in the management of that case the reduction of any peripheral irritation, whether it be in the nose, eyes, or the intestines, is the indication. I believe, as Dr. Gradle has stated, that the nausea and stomach manifestation of an attack of migraine are absolutely neurotic, a portion of the storm, and in no way to be accused of exciting it. I regret, however, that he has not mentioned the recent theories advanced, principally by Haig, that many of these attacks of migraine are nervous storms set up by the uric acid diathesis, by what he calls uricacidemia. If Haig's personal experience teaches anything, it shows that any diet calculated to increase the amount of urea and uric acid floating in the circulation, may produce headache, and any remedy, such as mercury or iron, or lithia salts, having a tendency to eliminate the urates from the blood will relieve the condition and prevent the headache.

Dr. J. H. COULTER: It is doubtless the use of the opiates in these cases that induces chemists to bring out the coal tar remedies. Yet there is a very serious objection to these remedies in these cases; that is their cardiac depressing effects. They are unsafe as they sometimes produce alarming cyanosis, as any one who has used them to any extent will admit. Phenacetin is so insoluble that it cannot be used with safety, because where it will dissolve in one stomach quickly in another it is almost insoluble, depending somewhat on the amount of fluids in the stomach and their quality. The doctor referred to the use of *cannabis indica*

and I am led to believe from his experience that it must be a valuable drug in these cases.

Dr. HARLAN: One of the peripheral irritations that has not been mentioned by the essayist or any of the speakers, is the condition of the teeth and the surroundings of the teeth. It has been found in a good many cases that even the exhibition of drugs has failed to cure after ocular defects have been corrected and nasal irritations removed, and that by the removal of disease around the roots of teeth, such cases have been cured.

Dr. H. N. MOYER: As I look back on the experience of ten years it seems to me there is scarcely a case of migraine of the severer type which Dr. Gradle described, that I have relieved. I agree in the main with Dr. Gradle's paper, which I think is a most excellent contribution to the subject. He takes conservative and what I consider true views regarding the relief of certain so-called reflex disturbances in the causation of migraine. I do not think there is anything like the proportion of cases due to eye strain that is generally supposed; still we ought to investigate the condition of the eyes in every case.

I will also add that of the last ten cases of headache that I have sent to ophthalmologists to have investigated, in which I had every reason to believe as near as I could arrive at it, that the headache was due to refractive error, only one was relieved by glasses.

Dr. HENRY GRADLE, in closing the discussion, said: There is but little I can add to the paper. Several valuable suggestions have been made, but they have covered a field in which I have had no personal experience, and I thought best to confine myself entirely to what I have actually learned in practice. As to insufficiency of ocular muscles, I fully agree with Dr. Coleman that the large majority have no clinical importance, because there is no annoyance after refractive errors are corrected. It is true there are some so-called insufficiencies in a small proportion of which we find no refractive error, or where the correction of refractive errors does not give the patient relief and in which we can demonstrate a want of balance of the ocular muscles. But this imperfect balance is by no means constant, and quite commonly such patients present other evidences of neurasthenia. In fact my operative experience has been very limited, and the cases I have seen that were operated on by others have not encouraged me to experiment much.

As regards Haig's observations, I have nothing to say for or against them; it is a subject to which I have paid no attention.

I can only point out this, namely, that in certain persons with migraine the attack can be brought on almost invariably by want of sleep. That would hardly be in accordance with the notion that uric acid plays much of a role. In myself, for instance, an attack can be easily induced by want of sleep.

I do not wish to be misunderstood, and if Dr. Moyer insists that the prospect of curing migraine is not always brilliant, I would hardly feel like contradicting him. If I can refer to a large percentage of cases cured or relieved, it must be admitted that most of my patients were in a certain sense selected ones, that is to say came to me primarily on account of their eye strain and even among these a few failures were encountered. Occasionally glasses will give relief as far as the eyes are concerned, but will not cure the headache, although this is rather rare. In those cases not benefited by, or not requiring glasses, *canabis indica* will give relief in a certain proportion, although perhaps not more than one-fifth are really cured by its use. Still this is a proportion large enough to be remembered in the treatment of this otherwise intractable condition.

PRESENTATION OF PATIENTS.

Dr. CARL BECK: 1. Suppurative Mediastinitis. This little child is seven months old. It was brought to me two months ago, suffering from obstructed breathing. It could not take the breast. I diagnosed adenoid vegetations and referred the child to the laryngological clinic where the vegetation was removed. A few days afterward the child was brought again to the clinic, suffering with great dyspnea. Only the immediate opening of a large pharyngeal abscess saved its life. On the same day I was called to see the child and found the abscess had been opened only at the upper part and not sufficiently to remove all the pus. I opened the abscess downward toward the esophagus about an inch. This relieved the dyspnea. About a week ago the child was brought to me again with a circumscribed edema between the second and third left rib, and on the sternum. * It was feverish and was breathing rapidly. From these symptoms and in connection with the retropharyngeal abscess I made a diagnosis of accumulation of pus underneath that edematous area. I opened the cavity and evacuated four or five tablespoonfuls of pus. For three days pus trickled out. You see where I made my first incision. Three days afterward I enlarged the incision toward the sternum and opened down into the anterior mediastinum, where with my finger I could feel the beating of the heart. This is a case of suppurative

mediastinitis anterior following a retropharyngeal abscess. It is now healing by granulation and I think the whole cavity will soon be closed.

2. Meloplastic operation. This man had an extensive cancer of the left buccal cavity. After removal of the tumor, there was no mucous membrane left. I have made the meloplastic operation according to the plan of Gussenbauer. In the place of the removed mucous membrane I transplanted a large flap of the skin from the cheek. The result is good. The man could not open his mouth wide enough to admit a spoon before the operation, now he can open it widely, as you see, and the skin inside of his mouth has become soft and purplish like the mucous membrane; only a few hairs are still growing. These can easily be pulled out and show degenerated bulbs.

Dr. D. A. K. STEELE reported

A CASE OF CEREBRAL TUMOR

Diagnosed by Focal Symptoms, with operation. Successful Removal of Tumor and Exhibition of Specimen. See page 16.

Dr. J. B. HAMILTON: I have listened with very great interest to this paper, and must congratulate Dr. Steele on the successful result. It is probable that the tumor will recur at some not very distant date, but that the operation has been made and the patient so far recovered is a great triumph. There is one point in regard to the technique about which I wish to speak, and that is the closure of the wound after operation. In four cases I have trephined with the chisel and mallet and removed a large section of the side of the skull in a horseshoe shape, breaking the bone directly at the base of the horseshoe; in that way the bone is turned over with the flap; and after the operation is finished the bone is returned, and there is made an osteoplastic resection of the skull. There is no displacement and the healing of the bone, under such circumstances, takes precisely the same length of time as the healing of a bone after fracture. For the first few days drainage by catgut suture or iodoform gauze is desirable. I am glad to see that Dr. Steele made use of the therapeutic test of mercurials. Brain tumors are very infrequent. In the Government Hospital for the Insane, after the establishment of the rule that every case that died in the hospital should be subject to post-mortem examination, with an average death rate of 300 or 400 patients in a year, it was almost a year before a single case was found of tumor of the brain in the necropsy room; we must admit

that these cases are more rare than is commonly supposed. I have known a good many instances of opening the skull by trephining for the purpose of removing a tumor, when nothing was found; so I think too much credit cannot be given for the making of correct diagnosis in this case.

Dr. H. N. MOYER: It seems to me that this case taken as a whole both in diagnosis and its outcome is exceptionally brilliant. There is an immense literature regarding operations for cerebral tumor, but the number of cases is very small. I believe the total number of tumors so far operated on and successfully removed in which the diagnosis was made by focal symptoms is less than ninety, but I suppose the number of contributions on the subject are three or four hundred. The surgeon is to be congratulated who undertakes an operation of this kind if he is rewarded by so brilliant a success, particularly one so unique as this in the size of the tumor, the extent of the operation, and its successful outcome. It is also surprising because of the absence of the general symptoms of cerebral compression; there was some headache but not the optic atrophy, or choked disc which are so commonly found. This probably is due to the fact that the tumor was of very slow growth, as these fibro-sarcomas always are. The reason why so many failures are recorded where the skull is opened and nothing is found, is due to the fact that cerebral localization is attended with very great difficulty. Apparently as well marked as the symptoms were in this case, there are tumors located at the base of the brain that will give nearly the same symptom grouping.

Dr. ARCHIBALD CHURCH: During the past five years I have had the unusual experience of being associated in over thirty cases of brain surgery for symptoms pointing to localized difficulty in the cortex. It has been my opportunity and necessity to look up the literature of the subject very thoroughly, and I wish to say that there is no case in the entire record which compares for brilliancy with this one, in point of size of the tumor, and the good result obtained. It is unique. It may not be unfair, however, to point out that the conditions presented both within the cranium, and subsequently by the examination of the tumor, are those which are the most favorable for such an outcome as has been secured. You will recall that the tumor is not a brain tumor strictly speaking, it is an outgrowth of the dura. The symptoms developed were due to pressure of the tumor as its growth impinged upon the motor centers.

The point which strikes me as being particularly interesting and valuable is the involvement of sensation. You are familiar with the conflicting views regarding the distribution of sensation centers in the cortex, some maintaining that it is coextensive with the motor area, and others that its representation is in other portions of the cortex. I have never found localized disease in the cortex in which sensory disturbances related to the motor impairment were not present, and this points to the co-extent of the sensory and motor areas.

Dr. D. A. K. STEELE, in closing the discussion, said: I thank those who have taken part in the discussion for the flattering comments they have made on the success of this particular operation. In regard to the man's mental condition before the operation, it did not seem to be affected at all, he seemed as bright and gave as good a history as a patient would with disease elsewhere.

In regard to the difficulty we had in replacing the removed bone chips, the suggestion made by Dr. Hamilton is a most valuable one, but I doubt whether it could have been carried out in this case on account of the necessity of a large amount of tamponage in order to control hemorrhage. The plan suggested by the President would not have been suitable in this case. Keen, who perhaps has written more fully on the subject of cerebral surgery than any American surgeon, describes the various ways of controlling hemorrhage from a wounded sinus. One of the dangers we have to contend against in controlling hemorrhage from the longitudinal sinus, is the aspiration of air and sudden death of the patient from air embolism, an accident which has occurred not infrequently. Volkmann lost a patient in this way. In this case there was not an accidental wounding of the longitudinal sinus; a careful digital exploration of the pedicle of the tumor convinced me that it sprang from the longitudinal sinus, and after the greater portion of the tumor was removed, there was left a small flattened pedicle as large perhaps as a twenty-five cent piece, and one-third of an inch in thickness, that was intimately connected with the wall of the sinus. A rough eye and finger examination of the tumor raised the suspicion that it was a sarcoma, and a knowledge of the necessity of removing all the tumor led to a deliberate opening of the sinus for the purpose of removing all the diseased tissue, and the only feasible way of doing that seemed to be by the sharp curette, scraping out the sinus and controlling the hemorrhage with the finger above and below, and then immediately replacing the finger with a firm tamponage of iodoform gauze. * Of course this was a

new sort of surgery for me, it was my first operation of this sort and one has to think and act quickly in these cases. It is no small matter to deliberately open the longitudinal sinus and then have a gush of blood that threatens the life of the patient, and the tampon is much more quickly applied in these cases than the ligature. The necessity of leaving the tampon in was the reason why we could not replace the buttons of bone that had been removed.

FIBROID INDURATION AFTER LOBAR PNEUMONIA.

Dr. LUDWIG HEKTOEN read a paper and exhibited specimen and slides. See page 27.

Dr. E. F. WELLS: Although pulmonary fibrosis is a very rare sequel of pneumonia, still some writers come forward with a great number of cases; others, again, of the widest experience have encountered but few cases. For instance Trousseau met it twice in his immense experience extending over a long life. Chomel encountered it twice, and Swett never saw a case although he practiced medicine for many years. Carpenter reports a number of cases seen in a short time. I have met with two instances, one in which the duration was three or four months and the other about two years, both fatal. The latter case was very interesting. The patient was a gentleman, twenty-one years of age, who was taken ill March 20, 1880. He had a chill at four o'clock in the morning and when first seen at 1 P. M., the pulse was 130 and temperature 101° , with great oppression of respiration and severe pain in the region of the right nipple. On the 2d day the pulse was 110 and temperature, 102.5° . On this day there was ordinary pneumonic expectoration. On the third day, temperature, 102.5° ; pulse, 116; in the afternoon he was worse, temperature, 104° ; pulse, 120, and slightly delirious. On the fourth day pulse, 106; temperature, 105.6° ; respiration, 30. On the fifth day, in the morning, he had a severe chill, with great pain in the left side, no expectoration whatever, great oppression of breathing, with in the afternoon, a pulse of 90, and temperature of 103° . On the sixth day, pulse, 90; temperature 102° . On the seventh day the pulse fell to 70 and temperature to 98° , with very profuse expectoration, muco-purulent in character, amounting to a pint or more in twenty-four hours. Eighth day, pulse, 58; temperature, 97° . Tenth day, pulse, 60; temperature, 98° . On the thirty-first day there was scarcely any expectoration, cough extremely severe, not frequent, considerable loss of weight and the man, who had previously weighed about 160,

weighed 116 pounds. Meanwhile there was dullness at the bases of both lungs. Between July 2d and August 16th he gained slightly; he then had a severe attack of obstruction of the bowels of nine day's duration, followed by great prostration. December 15, 1881, the expectoration was very scanty, there was a severe cough with extreme wasting, the chest walls were contracted in the most extraordinary manner, with depressions between the ribs. From March 1, 1882, for three weeks he had a most intense dyspnea; he could only sleep a few minutes at a time, waking up, gasping for breath, and no position he could occupy would give him relief. Temperature, 98°, pulse 100, with the heart action very powerful; his entire body seemed to be shaken by the action of the heart; emaciation extreme. On the 4th of March he died.

On the 5th of March, at the autopsy, both lungs were found shrunken in the most extraordinary manner, with bands of fibrous tissue coursing throughout both lungs; and this fibrous tissue not only affected the base of the lungs but extended to the upper lobes; while the lungs, generally speaking, were a mass of fibrous tissue.

It is doubtful whether prolonged hepatization, alone, is cause of fibrosis, for the reason that it has certainly been the experience of every practitioner to have seen cases of very prolonged hepatization with evidently complete recovery. I doubt the possibility of complete recovery from pulmonary fibrosis, and I do not think the fibroid condition, once established in a part of the lungs, can allow the part to return to a normal state.

In looking over some notes of cases in my own experience, I found several in which there was prolonged hepatization without fibrosis following. Of two of these one was a female twenty-eight years of age, with complete hepatization for two months, followed by perfect recovery. The other was a lady who had had pneumonia several times; in whom there was complete consolidation, with the ordinary signs of that condition continuing for more than two months, with complete resolution.

The literature of the subject is replete with similar cases, where there has been prolonged hepatization, with recovery. Although we must acknowledge that the presence of the pneumonic exudate in the air cells and finer bronchial tubes is an irritant and is usually, if not always, a necessary precedent to fibrosis, yet there must be something behind that. Various conditions have been given as the cause, such as alcoholism and dyscrasias of different kinds, but it is not likely that they alone are causative. So far as my information goes the majority of these cases have been in

previous good health, and have not been in the line of cases that have been held to be peculiarly susceptible to this condition. Leyden reports a case (*Berliner k. Wochenschrift*, 1879, S. 304), of consolidation that continued five months, with recovery, and Holt, (*N. Y. Med. Journal*, Jan. 24, 1885), reports the case of a child in which hepatization continued several months, with recovery. Wagner (*Deutsche Archiv. f. k. Med.*, Bd. XXXII.), reports that he found recovery, with complete disappearance of all signs and symptoms, in four cases of fibrosis of the lungs, and two other cases with permanence of the signs and symptoms of fibrosis.

Various symptoms have been noted as indicating this condition, some of which are probably fanciful. As for example, Pause (*Lungenentzündung*, S. 91), states that prominence of the thoracic veins is a symptom of fibrosis. One could hardly make a diagnosis upon that because it is a marked symptom of other conditions as well. Amberger (*Deutsche Archiv. f. k. Med.*, 1883, S. 508), states that immobility of the first rib is also a sign of this condition, and gives some instructions for detecting it.

The history of the literature of this subject is very interesting. Williams (*Diseases of the Chest*, 1840, p. 99), supposed himself to be the first who had called attention to this matter, and reported several cases. His description, was written in 1840.

The condition is doubtless simply a peculiar inflammation of the fibrous tissue of the lung inaugurated by a pneumonic inflammation, and follows the course of inflammations of such tissue elsewhere. The results are practically those of cicatricial contraction. The present case, to be sure, is one that did not persist to an extreme extent, but no doubt in time the lung would have contracted to an enormous extent, and the bronchi would have become tortuous and sacculated and cavities would have formed.

Dr. G. E. KRIEGER exhibited a Model of a Surgical Operation Room. Remarks were made by Drs. Hamilton and Ochsner.

The committee to which was referred the matter of the petition to congress regarding tariff, on drugs, recommended that the matter be tabled and indefinitely postponed. The committee was composed of Drs. J. B. Hamilton, J. H. Rauch and A. R. Reynolds. On motion, the report was adopted.

The committee to which was referred the communication from the New York Academy of Medicine relative to the establishment of a Bureau of Public Health, recommended that the society affirm its adhesion to the request of the American Medical Association for a department of public health and that a committee be ap-

pointed to coöperate with the committee of the said association engaged in the furtherance of said legislation. It further recommended that the Secretary of the society be instructed to notify our distinguished confrères of the New York Academy of Medicine that this society prefers the bill to establish a Department of Public Health, to the one proposed by them.

On motion, this report was adopted. The personnel of this committee was the same as that of the above committee.

Dr. H. N. MOYER introduced a resolution to the effect "that it is the sense of this society that the Detention Hospital should be under the management of a physician conversant with nervous diseases, and that the management of said hospital should be separate and apart from any other institution, and that a copy of the resolution be sent to the President of the County Board and to the Chairman of the Public Service Committee."

On motion, this resolution was adopted.

Dr. DOERING gave notice of an appropriation of \$200 with which to defray the expense of mailing the RECORDER to the members of the society during 1894.

THE COOK COUNTY HOSPITAL CLINICAL SOCIETY.

Regular meeting, December 7th, 1893.

Dr. PIERCE, Chief of Internes, in the chair.

Minutes of previous meeting read and approved.

Dr. PIERCE reported a case of stab wound of the abdomen. Thirty-one days previously the patient entered the hospital, about three hours after receiving a penetrating abdominal wound. On examination coils of intestine were found protruding through the opening, which was located in the left inguinal region. Patient's general condition good. The intestines were covered with warm cloths, and the patient aseptically prepared for celiotomy. Preparation of the extruded coils was limited to a careful removal of all dirt and sawdust, with a gentle sponging with warm water. No perforation found in this portion of intestine, but one in the intestine still in abdomen. Fecal extravasation was slight. Enteric wound closed with Lembert sutures. No flushing. No drainage. Liquid food given on second day. Free saline catharsis induced early. Dressed for the first time on the tenth day. Union perfect. Up and walking around the twenty-first day.

Dr. KORTEBEIN called especial attention to the excellent results which were being obtained in the surgical wards in the treatment of intraperitoneal infection without flushing. The peritoneal cavity was sponged dry and drained, and salines used copiously.

Dr. WALKER exhibited two cases.

1. A heart lesion for diagnosis. Patient had had rheumatism four years ago. At present exhibited all the signs of an aortic insufficiency. Corrigan's pulse was present, but not Quincke's. Albuminuria had existed on admission, not now present.

2. An abdominal tumor for diagnosis. A pulsatile swelling appearing over the head of the colon about four months ago. Tender, with painful paroxysms. Seemed to be nodular. Fixed in its locality.

Dr. BISHOP had frequently examined the case, which he thought to be either a dislocated kidney or a neoplasm. Koprostasis could be excluded, he thought, as he had kept the man under observation for several weeks with the daily use of strong cathartics, and his discharges were free and alvine. The tumor seemed to him to be slowly enlarging.

Dr. PIERCE reminded the society that the establishment of free catharsis could not be held to definitely exclude a fecal accumulation.

Dr. MCGREW exhibited eight cases of skin syphilis, four females with secondary lesions, four males with tertiary lesions. He called particular attention to a case among the women which closely simulated psoriasis, and to a case of rupia among the men. The eight cases included examples of all varieties of the disease, and were intended to exhibit the protean forms of appearance of the dermal manifestations.

Dr. BISHOP called attention to the fact that although one case markedly resembles psoriasis, the scales were heavy and palmar lesions were present. Upon removal of the scales no bleeding points were left, but a surface with a raw ham color.

Dr. OLNEY exhibited a case of benign angioma of the cheek, apparently becoming malignant.

Adjourned.

Regular meeting, December 21, 1893.

Dr. PIERCE, Chief of Internes, in the chair.

Minutes of previous meeting read and approved.

Dr. SIPPY exhibited four cases—three of locomotor ataxia, one of ataxic paraplegia.

Dr. WALKER exhibited a case of psoriasis closely resembling syphilis. Few scales only, arranged in circular figures in many places. Bleeding points appear on removal of scales; noticed for the first time about eight months ago, though in 1886 he had some sort of a skin eruption, not like this, however. Venereal history denied. Lesions present on extensor surfaces.

Dr. FINDLEY exhibited three cases:

1. A typical case of pityriasis versicolor.
2. A young girl, convalescent from typhoid fever, with double congenital epicanthus.

3. A case of secondary syphilis with periosteal nodes on right radius and ulna, left tibia. Node on right forearm spindle shaped, closely simulating tuberculosis. Depressed scar on forehead, another on left tibia, said to represent site of "sores," which had broken and discharged white matter. Patient entered hospital for the relief of pains in his left knee and ankle, of such severity as to require anodynes at first, but disappearing soon under daily mercurial inunctions, and iodide of potassium carried to iodism.

Dr. BISHOP said that he considered this a case of syphilitic periostitis, closely simulating tuberculosis. Nodes on radius and ulna were rare, however. The scars on patient's leg and forehead seemed either osteo-myelitic or tubercular.

Upon motion of Dr. KORTEBEIN, seconded by Dr. SIPPY, a committee of three, Drs. Kortebein, Bishop and Tinen, were appointed to draw up a set of resolutions thanking the retiring warden for his many kindnesses during the past year, both from a professional and personal standpoint.

Dr. BISHOP exhibited the following pathological specimens.

1. Plastic pericarditis, with suppurative pleuritis and mediastinitis.
2. A generally dilated heart.
3. Thrombosis of pulmonary artery, with hemorrhagic infarct of left lung.

Adjourned.

R. B. OLESON, } Secretaries.
T. B. FINDLEY, }

Reviews.

MANUAL OF DISEASES OF THE NERVOUS SYSTEM. By W. R. GOWERS, M. D., F. R. S., F. R. C. P. Second edition, revised and enlarged. Volume II. DISEASES OF THE BRAIN AND CRANIAL NERVES; GENERAL AND FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM. 182 illustrations. Philadelphia: P. Blakiston, Son & Co. 1893. Octavo 1070 pages. Cloth \$4.50.

For many months the second volume of this second edition of Gowers classical work on Diseases of the Nervous System, has been anticipated with considerable impatience, and it fully justifies the high expectations that were raised by the first volume. This new edition must ever remain a great satisfaction not only to the publishers but a monument to the industry of the author. Many advances in neurology, with a better classification of some obscure forms of disease that have become current since the last issue, are here properly recognized. The whole work bears the stamp of a practical and highly experienced writer and stands for the exposition of his views founded upon his own observation, but without neglecting the views of others, although the work done on the Continent and in this country might perhaps receive fuller consideration. The arrangement of this second edition is practically that of the first, the change consisting in the rewriting of numerous sections and the elaboration of others. Many of the illustrations are unworthy of such a text-book, and the cuts are badly worn from former use. The type and paper are also capable of improvement. These are minor considerations, however, which do not detract in any degree from the value of the text and the fact remains that Gowers is the most thoroughly reliable and complete work on nervous diseases now available.

THE PRINCIPLES AND PRACTICE OF SURGERY. By JOHN ASHHURST, JR., M. D., Barton Professor of Surgery and Clinical Surgery in the University of Pennsylvania, etc. Sixth edition; enlarged and thoroughly revised. 1161 pages, with 656 engravings and a colored plate. Cloth, \$6.00; leather, \$7.00. Philadelphia: Lea Brothers & Co. 1893.

Ashhurst's surgery maintains in its sixth edition the high standard of excellency which has always been its characteristic.

The author has so thoroughly revised his work that the most recent appliances and methods in surgery, with few exceptions, are at least mentioned. Dr. Nancrede has added an excellent chapter on surgical bacteriology, and the sections relating to surgical diseases of women, and diseases of the eye and ear have been thoroughly gone over and brought to date by eminent men in these specialties. This has added greatly to the value of the book. Dr. Ashhurst's well-known, comprehensive, and yet concise treatment of the various subjects, is even more marked in this than in the previous editions. A great deal of new matter has been added without making the volume unwieldy. Condensation and elimination have been most skilfully done where necessary. The book, as a whole, reflects credit upon its author, printer and publisher.

A TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY. BY W. S. PLAYFAIR, M. D., F. R. C. P., Professor of Obstetric Medicine in King's College, London, etc. Sixth American from the eight English edition. Edited, with additions, by ROBERT P. HARRIS, M. D. 697 pages, with 217 engravings and 5 plates. Cloth, \$4.00. Philadelphia: Lea Brothers & Co. 1894.

Playfair's midwifery is standard; to review a universally known book would seem almost a work of supererogation. The sixth American edition has undergone a double revision, by the author and by the American editor, who has, by his annotations, made the book more useful to the American practitioner. Dr. Harris' influence has abolished laparotomy and substituted celiotomy; he has also endeavored to do away with the author's predilection for craniotomy, which is not in accord with the views entertained generally by American obstetricians. Since 1876 the book has been a favorite with students and practitioners. And the edition under consideration will not be less popular than those which have preceded it. It is always conservative, always trustworthy. The path of intelligent conservatism for the general practitioner is ordinarily the path of safety.

A HANDBOOK OF OPHTHALMIC SCIENCE AND PRACTICE. By HENRY E. JULER, F. R. C. S., Ophthalmic Surgeon to St. Mary's Hospital, Surgeon to the Royal Westminster Ophthalmic Hospital, London. Second edition, revised and enlarged. One volume, 562 pages, with 201 engravings, 17 colored plates, etc. Cloth, \$5.50; leather, \$6.50. Philadelphia: Lea Brothers & Co. 1893.

A number of works upon the eye and its diseases have ap-

peared in the last few months, either new aspirants for professional favor or old friends in new dress. To the latter class belongs the book under consideration. It has been revised by the author and able assistants, has been enlarged by the addition of about one hundred pages and seventy-five illustrations, and is one of the most readable books that we have on the subject. It is always practical, always concise. Diagnosis and treatment, use of instruments, etc., are discussed with especial thoroughness. The book is clearly printed, fully illustrated and well bound, and is a credit both to the author and the publishers.

SYLLABUS OF LECTURES ON THE PRACTICE OF SURGERY. Arranged in conformity with the American Text-book of Surgery. By N. Senn, M. D., Ph. D., LL.D., Chicago, Professor of the Practice of Surgery and Clinical Surgery in Rush Medical College, etc. Cloth, 221 pages. \$2.00. Philadelphia: W. B. Saunders. 1894.

This little aide memoire presents in a systematic, clear, concise and practical manner, the main facts in surgery. The arrangement is excellent and the syllabus will prove useful to both professor and student. It is not so arranged as to be used instead of a text-book of surgery, but the intention is to have it used as a concise, ready reference book, after thorough study of the American Text-book of Surgery, wherein it is superior to the quiz compends and students handbooks of this subject. The book is well bound, neatly printed and of a convenient size to be carried in the pocket.

THE ESSENTIALS OF CHEMICAL PHYSIOLOGY for the use of students; by W. D. HALLEBURTON, M. D., F. R. S., F. R. C. P., Professor of Physiology in King's College, London, etc. Cloth, 166 pages, illustrated, five shillings. London and New York: Longman, Green & Co. 1893.

This is a book intended for the use of medical students. It is arranged in the form of lessons, with exercises and chemical tests to be performed by the student, and will undoubtedly be useful in its special department. Whether it will meet the views and requirements of the American medical student is a question difficult to answer. American and English methods are in many respects as far separated as were of old the Jews from the Samaritans, and the book under consideration is essentially English.

MANUAL OF PHYSICAL DIAGNOSIS for the use of students and physicians, by JAMES TYSON, M. D., Professor of Clinical Medicine in the University of Pennsylvania, etc. Second edition revised and enlarged. Cloth, 241 pages, \$1.50. Philadelphia: P. Blakiston, Son & Co. 1893.

Two years after the appearance of Dr. Tyson's manual, a second edition appears, excellent as the first, complete, succinct, clear, and to the point; a model of its kind. In addition to thorough revision the author has added as an appendix, a description in detail of the examinations now in vogue for the making or confirmation of diagnosis, the chemical analysis of stomach contents, examination of blood and bacilli, and directions for post-mortem examinations.

COLECCION DE MEMORIAS DE CLINICA QUIRURGICA, publicadas por Angel Contreras, Médico Cirujano de la facultad de México y Professor de Clinica Externa de la Escuela de Medicina de Puebla. 1893.

Dr. Angel Contreras, who aside from his well known skill in his profession will be remembered as one of the prominent visitors to Chicago at the time of the Pan-American Congress, has published an interesting and valuable collection of clinical lectures and reports which covers a broad field in surgery, including descriptions of cases of disease of and operations upon the skull, the thoracic and abdominal cavities, the genito-urinary apparatus, etc.

CHEMISTRY AND PHYSICS. By JOSEPH STRUTHERS, Ph. B., Columbia College School of Mines, N. Y., D. W. WARD, Ph. B., Columbia College School of Mines, N. Y., and CHARLES H. WILLMARTH, M. S., N. Y. \$1.00. The Students' Quiz Series, Philadelphia: Lea Brothers & Co. 1893.

This volume, the twelfth of the series, contains the main facts and theories in chemistry and physics in catechismal form. The compilation is complete, neat and concise, and the book will be of much use, in its proper place, to the student of medicine.

ESSENTIALS OF MINOR SURGERY, BANDAGING AND VENEREAL DISEASE. By EDWARD MARTIN, A. M., M. D. Second edition revised and enlarged; 78 illustrations; \$1.00. Saunders' Question Compend, No. 12. Philadelphia: W. B. Saunders. 1893.

This compend, one of the best of the series, has been made

more valuable and useful by the addition of a number of new illustrations, particularly in the section on bandaging, and by judicious revisions and additions.

WEEKLY MEDICAL REVIEW POCKET REFERENCE BOOK AND VISITING LIST, PERPETUAL. St. Louis: J. H. Chambers & Co. 75 cents.

This visiting list possesses many excellent features ; notably compactness and neatness. It contains in addition to the space for records and memoranda, the practical aids to memory usually found in such books. It is cheap, neat and convenient.

THE PHYSICIANS VISITING LIST, LINDSAY & BLAKISTON'S, FOR 1894. \$1.00 to \$3.00.

This is the forty-third year of publication of this excellent and deservedly popular visiting list. It contains the information usually found in visiting lists. It is small, light, compact, neatly printed on good paper, and well bound.

PAMPHLETS RECEIVED.

CLIMATIC TABLE OF KENWOOD, CALIFORNIA. The Kenwood Land Co. INEBRIETY. By R. M. PHELPS, M. D. *Northwestern Lancet*, Oct. 15, 1893.

SQUINT AND ITS TREATMENT. By WILLIAM H. WILDER, M. D. *Journ. Am. Med. Ass'n.*, June 17, 1893.

TWO CASES OF LARYNGEAL NEOPLASMS. By ROBERT LEVY, M. D. *Journ. Am. Med. Ass'n.*, Nov. 18, 1893.

INJURIES TO THE EYE AND ITS APPENDAGES. By CASSIUS D. WESCOTT, M. D. *Chicago Clin. Review*, Nov., 1893.

DESCRIPTION OF A NEWLY DEvised SANITARY BUILDING. By W. VAN DER HEYDEN, M. D. *Japan Herald*, Yokohama, 1893.

SOME CAUSES AND CHARACTERISTICS OF NEURASTHENIA. By A. D. ROCKWELL, M. D. *N. Y. Med. Journ.* Nov. 18, 1893.

THE SCHOTT METHOD OF TREATING CHRONIC DISEASES OF THE HEART BY BATHS AND GYMNASTICS. By ROBERT H. BABCOCK, A. M., M. D.

SCABIES, ITS SYMPTOMS, DIAGNOSIS AND TREATMENT. By J. ABBOTT CANTRELL, M. D. *Therapeutic Gazette*, Detroit, Mich., July 15, 1893.

REPORT OF THE SURGEON GENERAL OF THE ARMY TO THE SECRETARY OF WAR. For the year ending June 30, 1893. Government Printing Office.

MECHANICAL AIDS IN THE TREATMENT OF CHRONIC FORMS OF DISEASE. By GEO. H. TAYLOR, M. D. Pub. by Geo. W. Rodgers, New York. 1893.

AURAL VERTIGO. *Jour. Am. Med. Ass'n.*, Oct. 7, 1893. HEMI-PARAPLEGIA, WITH REPORT OF CASE. *Jour. Am. Med. Ass'n.*, Sept., 1893. By L. HARRISON METTLER, M. D.

FOUR SUCCESSFUL NEPHRECTOMIES. *Boston Med. Surg. Jour.*, April, '93. A CONTRIBUTION TO THE SURGERY OF THE GALL BLADDER. *Ann. of Surg.*, Oct. '93. By MAURICE H. RICHARDSON, M. D.

RECENT PROGRESS IN ELECTRO-GYNECOLOGY. *Journ. Am. Med. Ass'n.*, Sept. 2, 1893. PREVALENT ERRORS IN THE TREATMENT OF THE DISEASES OF WOMEN. *Therapeutic Gazette*, June 15, 1893. By G. BETTON MASSEY, M. D.

COFFEE DRINKING AS A FREQUENT CAUSE OF DISEASE. NOTE ON A USUALLY OVERLOOKED CONDITION IN THE GRAVE CONVULSIONS OF INFANCY AND CHILDHOOD. SOUTHERN CALIFORNIA AS A RESORT FOR CONSUMPTIVES. *Milwaukee Med. Journ.*, Feb. 1893. By NORMAN BRIDGE, A. M., M. D.

SPASTIC SENILE ENTROPIAN CURED BY CANTHOTOMY. THE RELATION BETWEEN THE EYES AND DISEASE OF THE FEMALE GENITAL ORGANS. *Am. Journ. of Obstet.* Vol. XXVIII. No. 4, 1893. THE TREATMENT OF BLENNORRHEA NEONATORUM. By BOERNE BETTMAN, M. D., *Journ. Am. Med. Ass'n.* Aug. 12, 1893.

MODERN BACTERIOLOGICAL RESEARCH IN ITS RELATIONS TO GENITO-URINARY SURGERY. INFLAMMATION ABOUT THE CAPUT COLI. MUSCLE BUILDING AS ILLUSTRATED BY THE MODERN SAMPSON, SANDOW. *Journ. Am. Med. Ass'n.*, Sept. 16, 1893. ETIOLOGY OF PROSTATIC HYPERTROPHY. By G. FRANK LYDSTON, M. D.

A NEW OPERATION FOR HARELIP. *Jour. Am. Med. Ass'n.*, Aug. '91. TUBERCULOSIS OF BONES AND JOINTS. *Journal Am. Med. Ass'n.*, Oct. '89. A CASE OF ELEPHANTIASIS OF THE SCROTUM. *Am. Jour.*, Oct. '91. THE VAGINAL OPERATION IN EXTRA UTERINE PREGNANCY. *Jour. of Obstet.*, '91. OVARIOTOMY DURING PREGNANCY. *Jour. of Obstet.*, '91. REMARKS ON APPENDICITIS. *Jour. of Obstet.*, '93. By CHRISTIAN FENGER, M. D.

News Items.

PROF. RUDOLF KALTENBACH, director of the Gynecologic Clinic at Halle, died recently.

PROF. J. C. BAY has been appointed bacteriologist to the Iowa State Board of Health.

DR. Z. TAYLOR EMERY has been appointed Health Commissioner of Brooklyn, New York.

DR. E. B. HUTCHINSON, late house surgeon at St. Luke's Hospital, is located at 5501 Monroe Avenue.

LA GAZETTE MEDICALE announces a change in editors; Dr. Pierre Sebileau succeeding Dr. F. de Rause.

DR. J. N. BARTHOLOMEW, has moved to this city from Trenton, Ohio. His address is 52 Lincoln Avenue.

DR. WILLIAM F. WAUGH, of Philadelphia, has located in Chicago with an office in the Opera House Building.

DR. S. GUTTMANN, privy counselor, and editor of the *Deutsche Medicinische Wochenschrift*, died December 22.

DR. H. W. CHENY, late house surgeon at St. Luke's Hospital, is located at the corner of 63d Street and Oglesby Avenue.

A STATUE OF RICORD has been erected in front of the Hospital du Midi on a pedestal that has already been some time in place.

DR. A. R. EDWARDS, who has been studying for several months in the Allgemeines Krankenhaus, Vienna, has returned to Chicago.

DR. OWEN E. STEARNS, of Freeport, one of the most widely known physicians in Northern Illinois, died December 13, of pneumonia.

PROFESSOR TYNDALL'S DEATH, which occurred at Hazelmere, Eng., December 4, is said to have been hastened by an overdose of chloral.

DR. LEWIS VAN PATTEN, formerly of St. Charles, Ill., has located in Chicago with office at 70 State Street, residence, 658 W. Polk Street.

THE PHILADELPHIA POLYCLINIC is now a weekly. The form is changed to that of a double column page, but the subscription price is unchanged.

Dr. GEORGE SCHLOETZER, sometime member of the Board of Health and late City Physician of Chicago, died in Karlsruhe, Germany, December 5.

THE SYRACUSE HOSPITAL FOR WOMEN AND CHILDREN, took fire on December 13 and was damaged to the extent of \$4,000. The patients were all got out in safety.

Dr. AND MRS. HENRY P. NEWMAN gave a charity entertainment December 15 at their home, 492 West Adams Street, for the benefit of the Children's Aid Society.

DUPLAY has been given charge of the surgical clinic at the Hotel-Dieu in succession to the late Prof. Le Fort; and Tillaux has succeeded to the surgical clinic at the Charité.

THE REMARKABLE STATEMENT is made that ten Yale students have been stricken with appendicitis within a year. This looks as if some dietary problem were involved in the case.

AUGUST MARTIN, heretofore docent, has been made Professor of Gynecology and Obstetrics in the University of Berlin. The honor thus conferred is an eminently deserved one.

THE ILLINOIS STATE BOARD OF HEALTH have issued to the directors of schools throughout the State a circular pointing out the mandatory character of the vaccination regulations.

DR. ARTHUR MILNER MARSHALL, F. R. S., professor of Zoölogy at Owen's College, Manchester, was killed December 31, by a fall over a precipice while ascending one of the peaks of Scafell, Cumberland.

THE JOURNAL OF PRACTICAL OPHTHALMOLOGY is the latest aspirant for professional favor. It is to be issued by Dr. F. F. Whittier, of Boston, Mass., and will give special attention to refraction.

FAIRVIEW SANITARIUM, devoted to the care of women suffering from mental exhaustion, has been opened by Dr. F. C. Wilson, of Jacksonville, late of the staff of the Illinois Central Hospital for the Insane.

PROVIDENCE HOSPITAL TRAINING SCHOOL FOR NURSES graduated its second class on December 12. A class of six young colored women who had finished an eighteen months' course of training were given diplomas.

Dr. JENNIE TAYLOR, a graduate of the Woman's Medical

College, Philadelphia, has accompanied her uncle, Bishop Taylor, who is in charge of the Methodist Episcopal missions on the west coast of Africa, to his post.

THE INTERNATIONAL MEDICAL CONGRESS, which was to have been held September 24, but was postponed on account of the prevalence of cholera, will now, it is announced, hold its meeting from March 24, to April 5, 1894, at Rome.

PROF. J. RUSSELL REYNOLDS, M. D., has been elected to succeed Sir Andrew Clark as President of the Royal College of Physicians. He received seventy-five votes. Dr. Samuel Wilks of Guy's Hospital received seventy-two votes.

Dr. J. W. WASSALL, of Chicago, has been appointed court dentist at St. Petersburg, and will go in February to his new post. With him will go his young wife, who writes cleverly and is a musician.—*Journal of American Medical Association.*

THE KEEN EYESIGHT OF INDIANS is not a myth. Dr. Carlos Montezuma, of the Indian School at Carlisle, after careful examination says that Indian boys and girls have on the average one-tenth more vision than white children. They are farsighted.

Dr. H. B. DEMARVILLE, of San Francisco, has received the honor of knighthood from the king of Portugal in tardy recognition of his skill in saving the life of a member of the royal family, who sustained a wound of the femoral artery fourteen years ago.

WANTED.—Office room for the afternoon in the heart of the city from May 1st, 1894, with regular practitioners. Reply giving terms and all particulars.

ROBT. G. MARRINEE, M. D., Menominee, Mich.

Dr. PAUL GIBIER, director of the Pasteur Institute, New York, read a paper before the New York County Medical Society, December 25, in which he detailed the results of his experimental treatment of epilepsy by means of vital extracts from the sheep.

THE ALUMNI ASSOCIATION of the College of Physicians and Surgeons of New York, offers a prize of \$500 for the best essay embodying the results of original investigations upon any medical subject. Essays must be sent to the Secretary before April 23, 1894.

Dr. J. C. HOAG has recently performed caesarian section at St. Luke's Hospital, saving mother and child. The operation was

rendered necessary by reason of the presence of a large dermoid cyst, which nearly filled the pelvic cavity. The boy may be named Cæsar McDuff.

DEATH FROM A SPIDER'S BITE.—While engaged in helping to put up the Christmas decorations in the Episcopal church at Sparkhill, on the Hudson, a young woman was bitten on the cheek by a spider which had been brought in on the greens, and in a few days death resulted from septicemia.

A LION ON AN OPERATING TABLE.—At the New York College of Veterinary Surgeons, on December 29th, the operation of setting and dressing the fractured femur of a lion from one of the down town museums was successfully accomplished. The lion was kept quiet by a hypodermic injection of morphine.

HOAGLAND LABORATORY directors have appointed Dr. E. H. Wilson, Director of Bacteriology, vice Dr. G. M. Sternberg, resigned to become Surgeon General of the United States Army; and Dr. S. E. Jolliffe, librarian in place of Dr. G. T. Kemp, who has resigned to accept a position in Johns Hopkins University.

THE KENT CHEMICAL LABORATORY of the Chicago University was formally dedicated January 1. The laboratory is perfect in construction and equipments and is the gift of Mr. Sidney A. Kent. The dedicatory ceremonies were attended by a number of the leading chemists and professors of chemistry throughout the United States.

Dr. JOHN A. BENSON seeks an injunction in the circuit court to restrain Dr. S. B. Buckmaster from occupying the chair of physiology in the College of Physicians and Surgeons of Chicago, on the ground that a professor must purchase a certain amount of stock in order to qualify. Dr. Benson incidentally states that his stock is for sale.

THANKSGIVING DAY was observed with peculiar appropriateness in the little town of Gallipolis, in the southern part of Ohio, for the day marked the opening of the State Hospital for Epileptics, the first of its kind in this country. Steps have been taken in Massachusetts, in New York, and in Pennsylvania, looking to the establishment of similar institutions.

A MEDICAL CHINAWOMAN is what Miss Oy Yoke, of San Francisco, most wishes to be. For the past three years she has supported herself by nursing the sick among her people. The race

prejudice is so strong in California that she has been unable to continue her studies there. She is steadfast and persevering, and should succeed in her attempt to obtain a medical education.

PROFESSOR HENOCHE has resigned his chair in the University of Berlin, and his clinic of children's diseases in the Charité Hospital. The names of Professor Rauchfuss, of St. Petersburg, Dr. Jacobi, of New York, Dr. von Noorden, of Berlin, Professor Kohts, of Strassburg, Dr. Soltmann, of Breslau, and Dr. Escherich, of Graz, are mentioned in connection with the succession to the chair.

J. NEWTON McDONALD, whose name is intimately associated with the Chicago Medical Directory, will obtain a variety of very interesting interviews, by calling upon a number of gentlemen whom he induced to go into a "specialist's list," in his last issue, on the representation that it was to be a complete list, and otherwise ethical. It would be wise, however, for him to go into training for a few months before making these calls.

A MEDICAL TRADE UNION has been formed by the physicians in Brussels, Belgium, to offer organized resistance to attempts at reduction of their charges. They have been forced to take this step, on account of a circular letter emanating from the labor unions informing the physicians that those only would be called in by members of the unions, who would render medical service at the rate of a franc and a half, or thirty cents, a visit.

THE WEATHER IN CHICAGO for December showed a maximum temperature of 58° on the 24th, with a minimum temperature of 6° below zero on the 1st, the greatest daily range being 30° on the 18th. The prevailing direction of the wind was from the south-east, attaining a maximum velocity of 53 miles from the southwest on the 15th. Total precipitation 2.4 inches. There were ten cloudy days, eight partly cloudy days and thirteen clear days.

Dr. WALTER M. TANQUARY, professor of anatomy in the College of Physicians and Surgeons, and demonstrator of anatomy at the Post Graduate Medical School, died suddenly January 3. The cause of death as stated in the death certificate was congestion of the brain and edema of the lungs. Dr. Tanquary was an earnest student, and an excellent teacher of anatomy. He was very popular among his fellows, and his death is a great loss to the profession.

AN ITALIAN PHYSICIAN has just been tried for refusing to visit patients ill with the cholera, and sentenced to twenty days' impris-

onment, to pay a fine, and is enjoined from practicing his profession in any way for three months. During the previous epidemic of cholera the peasants were accustomed to shoot and stone physicians who attempted sanitary improvements or to give medical aid. Between the law, which says must, and the people, who say shall not, physicians have a hard time in Italy during cholera epidemics.

THE NEW YORK BOARD OF HEALTH has made the declaration that tuberculosis is a contagious disease and is distinctly preventable. In view of the above the board applied to the charities commission, asking that such steps be taken as will enable them to have and control a hospital, to be known as the "consumptive hospital," to be used for the exclusive treatment of this disease, and that as far as practicable all inmates of the institutions under their care suffering from tuberculosis be transferred to this hospital.

THE POLICLINIC of the International Hospital in Paris was formally opened on November 16, by M. Jules Simon, in the presence of M. Péan, the founder of the hospital, Professor Sappey, M.M. Galezowski, de Pietra-Santa, and a large concourse of members of the Academy of Medicine, senators, deputies, municipal councilors, and representatives of embassies. An address was delivered by Dr. Aubeau, who described the objects of the institution as the provision of medical help to persons of all nations, and the assemblage of all the specialties of medical practice under one roof.

THE COLUMBUS MEDICAL LABORATORY has been incorporated with offices at 103 State Street. The gentlemen interested are Drs. Gehrman, Harshaw, Wesner and Hektoen, who are prepared to make any bacteriological, microscopical or chemical investigation of a medical, hygienic or medico-legal character. The standing and qualifications of these gentlemen places this laboratory at once on a reliable basis. It is an institution that has long been needed and no doubt it will receive generous patronage at the hands of the profession who will find it an immense advantage and convenience.

INTERNAL VACCINATION is the latest vagary of one of the ultra-Hahnemannian physicians of this city who used the columns of the *Tribune* to exploit his views. Dr. Quine, President of the State Board of Health, very properly replied, fully controverting the opinion advanced in the article, the author of which is not supported even by those of his own school. It is not claimed

that vaccination is a perfect safeguard, but the experience of health officers and physicians throughout the world, has shown that the cases are very rare indeed in which smallpox occurs after thorough vaccination.

THE PENETRATIVE POWERS of the modern rifle bullet was the subject of a communication recently made to the Paris Academy of medicine by Dr. Chauvel, who detailed the experiments made by Dr. Demostheus, chief surgeon of the Romanian army upon cadavers. The rifle used was the improved Mannlicher. It was found that at a distance of 1,800 feet a bullet would pass through three bodies placed one behind the other. The external wounds were smaller than those of the bullet of the rifles formerly employed, but the bones struck were splintered in pieces. The arteries also were said to be cut so completely as to render hemostasis almost impossible.

THE WESTERN ASSOCIATION OF OBSTETRICIANS convened at Des Moines, Iowa, on December 28, for its annual meeting. The following officers were elected: President, Dr. L. Schooler, of Des Moines; Vice Presidents, Drs. J. E. Summers, of Omaha, Neb., and W. F. Sawhill, of Concordia, Kas.; Secretary, Dr. T. J. Beattie, of Kansas City, Mo.; Treasurer, Dr. M. R. Mitchell, of Topeka, Kas.; Executive Committee, Drs. L. J. Lyman, of Manhattan, Kas.; M. B. Ward, of Topeka, Kas., T. J. Shreves, of Des Moines, Ia.; C. W. Adams, of Kansas City, Mo.; and G. Wilkinson, of Omaha, Neb. The next meeting will be held at Omaha, December 27, 1894.

THE CHICAGO MEDICAL MISSION, in its first semiannual report shows that 5,280 sick and injured persons have received medical and surgical care; that 2,500 visits to the sick have been made by its nurses; that 25,000 have availed themselves of the laundry and bath privileges, that more than two carloads of clothing have been given to the needy, and that more than 190,000 persons have been furnished meals. The obstetric and emergency departments have also done excellent work. This mission, which has never asked for aid, but which has accomplished so much in the first six months of its existence, deserves well of the profession and of the general public.

THE NEWBERRY LIBRARY has been presented by Dr. Nicholas Senn, with a large portion of his medical library, including books, periodicals, archives and charts. It will be kept separate and will be known as the "Senn Collection." The trustees of the library

have undertaken to continue to completion the current publications in this collection. This magnificent gift, together with the library of the American Medical Association, will place the Medical Department of the library in the front rank. As a reference library it is especially valuable, and the ease and rapidity with which needed books or periodicals are obtained by readers, reflects great credit both upon the arrangement and the management of the department.

THE HEALTH DEPARTMENT REPORT FOR DECEMBER shows a mortality for the month of 2,036, an annual death rate of 15.27 per thousand. Of these 1,045 were male and 991 female; 1,998 white and 38 colored. 13 deaths occurred from small-pox; 101 from diphtheria; 22 from scarlet fever; 43 from typhoid fever; 43 from croup; 50 from cancer; 210 from phthisis pulmonalis; 41 from apoplexy; 61 from meningitis; 79 from heart diseases; 135 from bronchitis; 250 from pneumonia; 30 from la grippe; 31 from enteritis; 23 from gastritis; 17 from gastro-enteritis; 46 from peritonitis; 38 from diseases of the genitourinary system; 14 from puerperal peritonitis; 43 from senile debility and gangrene; 80 from accident; 10 from homicide; 32 from suicide.

RUSH MEDICAL COLLEGE through its trustees and faculty, have decided to require four years attendance at college from students who begin the study of medicine this year, with a view to graduation in 1898; however, those who have already studied medicine one year or more with a preceptor, so that the four years of study, already required, will be completed before July, 1897, may graduate after three courses of lecture as heretofore. To encourage proper preliminary study, graduates in Arts and Sciences from high grade colleges, and graduates in Pharmacy and Dentistry from colleges requiring a proper amount of study and two full courses of lectures will, until further notice, be allowed to graduate after an attendance on only three courses of lectures.

THE COUNTY COMMISSIONERS at a recent meeting decided upon the consolidation of the Detention Hospital and the County Hospital, with the exception of the medical department of the former, which is still to remain under the control of the County Physician. Each commissioner was allowed to name one physician and one surgeon for the medical staff of the County Hospital. The regular nominees thus far selected, are, on the surgical side, Drs. M. Muffat, O. J. Price, T. A. Davis, A. E. Hoadley, F. A. Sherwood, A. I. Bouffleur, C. W. Hawley, R. Melms,

J. B. Murphy, C. W. Johnson, and C. E. Greenfield. On the medical side, Drs. J. B. Herrick, G. F. Butler, J. E. Reynolds, A. R. Edwards, G. I. Sinxtel, M. Meyerovitz, C. F. P. Korssell, W. H. Ballard, T. Turk, and A. W. Baer. Dr. E. C. Fortner was elected County Physician, as he received eleven of the fourteen votes cast. Dr. A. R. Thomas was made Medical Superintendent of the Insane Asylum at Dunning, vice Dr. L. L. Hertel, resigned. The office of Assistant County Physician was abolished.

THE COUNTY BOARD has had peculiar ill fortune in its selection of Superintendent of the County Insane Asylum and Physician to the Poor House. Dr. L. L. Hertel received the former appointment, but as his standing and qualifications were called in question, he resigned in order to promote peace and quietness. Dr. J. Crowe was given medical charge of the Poor House, but nothing was known of him officially by the State Board of Health, nor was his name to be found in the medical directories. It is a grave mistake to entrust to men untrained, the care of so important institutions as the County Insane Asylum and Poor House. These positions should at least be extra-political. The recently elected Superintendent of the County Insane Asylum, Dr. A. R. Thomas, is a graduate of the Chicago Medical College, obtained the honor of the first place in the competition for internship at the County Hospital, served his term as interne there with great credit, and then became a member of the medical staff at Dunning, where he has already won golden opinions. Were all county appointees so well fitted for their positions as Dr. Thomas, there would be little cause for complaint.

THE DEPARTMENT OF HEALTH makes a very favorable showing in its annual report. The death rate of Chicago for 1892 was only 16.93 per thousand, based upon an estimated population of 1,600,000. The total number of deaths during the year was 27,095, 2,567 bodies were shipped beyond the city for burial, many of which did not belong to Chicago. Counting the enormous floating population of Chicago from May to November last year, this record is exceptionally good, and Chicago stands in the front rank of the cities of the world as regards health and low rate of mortality. Of the dead 12,207 were children less than 5 years of age; 1,209 between 70 and 80; 444 between 80 and 90; 51 between 90 and 100, and one each 105 and 110 years of age. Disease of the air passages was the cause of death in 1,602 cases; 336 died from

scarlatina; 959 from diphtheria; 667 from typhoid fever, as against 1,489 in 1891; 19 from smallpox, none of whom had been vaccinated. Of the 130 cases of smallpox recorded in the year, 58 were discovered in December. 112,910 vaccinations were made, 62,050 in December. The railways were responsible for 399 deaths during the year, an eloquent plea for track elevation.

A HEALTH RETORT CHART appears in the December issue of *American Climates and Resorts*, which is decidedly unique. It shows a human figure, with its head in the North Pacific Ocean, the Sandwich Islands in its right hand, its left forearm and hand including Mexico and Central America, the trunk taking in the United States and Canada, with Labrador in the gluteal region and the Hudson's Bay and the Northwest Territories sending cold chills up its spinal column, the right foot resting on Spain, the left on Ireland and France. With this chart is issued a poem entitled "The Organs of Man" which is a gem of its kind. Space will not permit the insertion of this work of art in extenso, but its intrinsic value will be seen upon close study of the following stanza:

"Behind the trachea, reached without much fuss,
 "Runs the sometimes troublesome esophagus,
 "Through this tube the food is conveyed
 "To the stomach, there into blood to be made."

After a somewhat complete description of the organs of man and their functions, the poet sums up as follows:

"With all these organs man would still be a fizzle
 "Had they not been encased in bone, muscle and gristle
 "All there being bound together in one,
 "Most wonderful body and strong skeleton."

Dr. CHARLES GILMAN SMITH died at his residence, No. 2220 Calumet Avenue, January 10, after an illness of two weeks' duration. For many years he had been a prominent figure in the medical profession and had an almost equal distinction in the social world. Reckoning by the length of time he had practiced his profession he was the oldest physician in Chicago, having been thus engaged more than forty years. Dr. Smith had been in feeble health for nearly three years, and during the last six months was obliged to cease his professional labors. He was born at Exeter, N. H., Jan. 4, 1828. When a boy he went to school at Exeter and later at Phillips Academy, where he prepared for Harvard Col-

lege. At sixteen he passed the examination of that institution and was accepted as a sophomore, graduating in 1847 in the literary department. Soon after he began the study of medicine in his native town, taking his first course of lectures at the Harvard Medical School in 1848-'49. Afterward he went to Philadelphia and continued his studies at the University of Pennsylvania, from which he graduated in 1851. He then went to Boston, where for two years he was attending physician at the almshouse hospital. In February, 1853, he came to Chicago, and began what soon developed into a highly prosperous and successful practice. He first located at No. 122 Lake street and confined himself to a general family practice. During the war he was one of the six physicians placed in charge of the prisoners at Camp Douglas in this city, and in this position he added largely to his reputation as a skillful practitioner. In 1868 Dr. Smith went abroad to study in the hospitals of France, Germany and England. On his return he lectured in the Woman's Medical College for some time. He was next made consulting physician at the Women's and Children's Hospital and at the Presbyterian Hospital. He was also a trustee for several years for the Peck Home for incurables, in which he took an active interest. Dr. Smith, in addition to his private practice, served a number of the more important insurance companies as their examining physician, a line in which he had an extensive experience. Dr. Smith was married in 1873 to Harriet G., youngest daughter of Erastus F. Gaylord, of Cleveland, O., who with a sister, Miss Elizabeth Smith, of Exeter, N. H., survives him.

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Original Articles.

OBSERVATIONS ON THE CAUSES AND TREATMENT OF MIGRAINE.

BY DR. H. GRADLE, CHICAGO.

A review of the latest standard text-books on nervous diseases reveals on the whole a very unsatisfactory state of the treatment of sick headache and shows also much uncertainty as to its causes as well as discrepancies among different authors on that subject. On this account I wish to place before you some personal observations based on a large experience with this disease, since in my line of practice migraine is a very common annoyance. In order to limit the subject I shall confine myself strictly to migraine or sick headache, or that form of headache which recurs in periodic attacks with free intervals of variable length between the spells. This is the only definition which I can accept as characterizing the disease. For the symptoms vary very much in different persons. Even the symptom which has given the disease one of its names, viz.: sick headache—that is to say the nausea often leading to vomiting toward the end of the attack occurs in less than one-half of the patients and in these not with every attack.

I have but little to add to the symptomatology. Some of the less common symptoms, however, it may be worth pointing out. In one of my patients the attack began with dizziness and a subjective feeling of chilliness and numbness so pronounced that the case was mistaken for malaria by the family physician. Yet this was but a migraine of distinct ocular origin and completely relieved by glasses. In many cases an attack begins with flickering and more or less visual disturbance sometimes in the form of hemia-

nopsia, sometimes with gradual shrinkage of the visual field. This form has been called by different writers ophthalmic migraine and scotoma scintillans fugax. There exist, however, all gradations between the most pronounced instances of this type and ordinary migraine. After the short spell of dimness the typical headache comes on. It has almost seemed to me as if this form of blind headache, as it is popularly called, were better known to the public than to the profession at large. In comparatively few instances the blind spell is not followed by any headache at all, its place being taken by other nervous symptoms such as numbness and a feeling of pressure in the head.

In the etiology of migraine I wish to combat what seems to me certain errors that are repeated in most modern text-books. Gowers, for instance, considers migraine a manifestation of gout. Its appearance however in early life, even in childhood and its frequent cessation after middlelife speak against this view. Even in migraine patients of advanced age I have not seen gouty manifestations often enough to suggest any connection.

Again many authors connect migraine with epilepsy. Yet the one is an exceedingly common complaint, the other a relatively rare disease. Moreover it must not be overlooked that an epileptic may have sick headaches as well as a person not so afflicted. The most probable reason why this otherwise unsupported view of the relation of these two diseases has been copied in text-books seems to me to have been a diagnostic error. It is not unlikely that the minor attacks which often precede the history of pronounced epileptic seizures have been mistaken for erratic forms of migraine.

According to my personal experience migraine is not characteristic of a neurotic tendency. While I admit that this headache is often hereditary in families and that it is more apt to occur in persons of a neurotic disposition, I have observed many instances where neither the patient's antecedents nor the family history indicated any liability to functional disorders or lesions of the nervous system.

The most frequent etiological factor of migraine within my experience has been astigmatism. My main reason for dwelling on this relationship, so well known to all oculists, is the fact that it is slighted or ignored by many authorities on nervous diseases, Gray, Gowers, Hirt. I cannot however give any statistics of any value on this subject for most of the patients came to me not on account of their headaches but on account of their eyes. Hence

even if I had complete records they would consist of selected cases and would therefore be valueless for statistical purposes. As an approximate estimate I would judge nearly one-half of all instances of migraine to be dependent upon astigmatism. But the very fact that not all astigmatics suffer from sick headaches shows that certain conditions of the nervous system are requisite to the occurrence of migraine.

The proof of the relation of astigmatism to migraine is furnished by the permanent cessation of the attacks when correcting glasses are worn. But the attacks do not always cease at once after the optic correction. Sometimes a few mild spells will still occur. Again, in other instances the attacks do not cease entirely, but become less frequent and less severe. It must be remembered, however, that the most perfect correction of astigmatism ceases to be perfect when the patient looks through the glass at an angle with the axis of the glass, and that patients are not always as faithful about wearing their glasses as the physician expects them to be. Yet I could find on my records over one hundred illustrations of permanent relief by glasses controlled by observation after months and years. Occasionally patients have returned to me after years of freedom with a return of the old headache due to incorrect repairs of their broken glasses.

The degree of astigmatism most commonly associated with sick headache is from one to three dioptrics. High degrees of astigmatism often cause no annoyance except poor sight. Whenever migraine seemed to depend on an error of less than one dioptre down to one-half it has been mostly in persons of a neurotic history. I have never been able to trace sick headaches or any other form of complaint to an astigmatism of less than one-half dioptre. I have but rarely prescribed weaker glasses myself, and neither in my own instances nor in numerous observations when patients had received such weak glasses from others have I seen any decisive benefit following their use. It has seemed to me that astigmatism with oblique meridians is more apt to cause migraine than when the principal meridians are either approximately vertical or horizontal.

Finally I do not wish to conceal the fact that migraine may occur in conjunction with astigmatism without apparent dependence upon the latter. For in a few rare instances the satisfactory optic correction had no effect upon the headache.

In practice the question often occurs whether migraine can be caused by an astigmatism which the patient does not feel as eye

strain. I have not had any observations enabling me to decide that question definitely. There are certainly instances where patients with migraine, curable by cylinder glasses, do not complain of their eyes voluntarily, but on close questioning they have usually admitted that their eyes did get tired or weak on prolonged use.

Hypermetropia has been but rarely the cause of migraine in my observation. This condition it is true is a very common cause of headaches, but they are not of the periodic type. Quite commonly hypermetropia, as well as astigmatism, give rise to headache immediately following the use of the eyes, but this form of pain is not the subject of the present paper.

A much less common source of migraine, in my experience, has been nasal disease. Inflammatory affections of the nose and accessory sinuses, lead very often to headache it is true, but not of the migraine type. Since Hack first reported his accidental cures of migraine by nasal cauterization, some ten years ago, I have searched for the etiological influence of nasal troubles in all cases which were not clearly traceable to eye strain. I have not been able to confirm Hack's observations, however, that sick headaches are frequently ushered in by nasal irritability, and in such instances are permanently stopped by cauterization of the turbinated bodies. But I have seen at least six instances of unilateral migraine occurring principally or exclusively on the side of a nasal stenosis, in which permanent improvement not far from a perfect cure followed the operative removal of the stenosis.

Another peripheral affection which has seemed to me to have an etiological relation to migraine is intestinal catarrh. I cannot say much as to its frequency, on account of the limitation of my practice, but I have obtained, not so very rarely, a history of dyspeptic annoyances with loose passages alternating with constipation in patients whose migraine could neither be attributed to eye strain nor to nasal disease. The relation of the two disorders to each other, suggested by the histories, was made very probable by the improvement in the headaches following the dietetic and hygienic management of the intestinal disease. As a rule, however, I have seen such patients in consultation and have not always been able to follow their subsequent course.

In less than one-half of the cases of migraine under my observation no peripheral source of the headaches could be found.

An influence, which has often shown itself by aggravation of the headaches is overwork and want of sleep, as for instance in

nursing mothers. I have not been able to satisfy myself, however, that malnutrition from other causes plays any role in this disorder.

It is of importance to study what influences lead to the occurrence of attacks in patients subject to migraine. Many persons claim that any disorder of digestion will bring on their spells. I think this is an error, and that the nausea which often terminates the attack, is a symptom of nervous origin and does not indicate any primary gastric disturbance. At least in those instances in which I have been able to study closest, I have never observed gastric anomalies preceding the attack, nor have I seen the attacks brought on by actual stomach disorders.

In some patients insufficient sleep is the most important exciting condition of migraine. In instances of migraine beginning with scotoma I have observed attacks induced by dazzling illuminations, an observation to which Manz has also called attention.

The treatment of sick headaches has been most satisfactory to me in those cases which are due to eye strain. With very few exceptions glasses have always given such patients relief. If well selected and properly worn they have practically abolished headaches in most instances.

My own experience although limited as well as the more extensive observation of Hack suggest that whenever migraine can not be attributed to eye strain a nasal influence should be searched for. Whenever a one-sided migraine corresponds to a one-sided nasal stenosis, or whenever a marked irritability of the nasal cavernous tissue exist and makes itself noticeable at the time of the attacks, nasal treatment offers at least a reasonable prospect for a permanent cure.

The improvement which I have witnessed after dietetic management, of intestinal catarrh should likewise be a hint in the examination and treatment of patients with migraine.

Wherever overwork seems to play a role we may expect improvement by proper hygienic directions. I have repeatedly seen patients temporarily and a few times permanently benefited by traveling, even though the journeys did not involve complete relaxation from business or studies.

Of drugs I know none that will cure migraine except cannabis indica. According to my experience one-fourth to one-third of all patients are permanently benefited by its use. This applies equally to cases with no peripheral source of irritation, as well as to those with eye strain who for some reason or other would not wear glasses. Seguin, who first popularized the use of Indian

hemp in this disorder, advised its continued administration in every case and claimed more or less complete relief in about one-half of his observations after several months' treatment.

When I began the study of *cannabis indica* about twelve years ago, many preparations in the market were inert; I found however a solid extract prepared by Hering absolutely reliable. Squibb's hemp is perhaps equally good but I have not had the same experience with it. For reasons of convenience I have always used the tincture, 360 grs. to the pint, prepared with Hering's extract, in fifteen to twenty-five drop doses. This dose must not be given oftener than once in six to eight hours or it will lead to an accumulative and often very disagreeable effect on the mind.

My first experiments showed that in certain patients *cannabis indica* aborts each attack of migraine. If the first dose does not give complete relief I repeat it in six hours in slightly larger quantity. Where moderate doses fail entirely, larger quantities answer no better purpose. Very severe attacks are sometimes only relieved, but not entirely aborted.

Whenever hemp influences the individual attack, its continued use twice daily will usually protect the patient against recurrent spells and if persisted in for months will cure many but not all of these cases. I have scarcely ever insisted on its continued use in these instances in which it did not alleviate the pain at the time and have no reason to think that it would prove of service to such patients in the long run.

Other drugs recommended in the text-books for the cure of migraine such as iron, strychna, arsenic and phosphide of zinc, I have used but little myself and invariably with negative results. But I have had a fair experience with patients who had pursued such treatment thoroughly on the advice of other physicians and likewise without appreciable benefit.

If the individual attack does not yield to *cannabis indica* it can be stopped almost invariably by antipyrin. Antifibrin and phenacetin are not as universally successful as antipyrin. Guernana has in former times more often failed than proven satisfactory in my patients. Bromides do not stop the attacks although they may mitigate the discomfort. Chloral aborts migraine only when it induces sleep in patients whose headache yields to sleep. Morphine has no effect at all on the attack, it only dulls the pain while its action lasts.

A STUDY OF PLACENTA PREVIA--ESPECIALLY THE CAUSES OF HEMORRHAGE.

BY SARAH HACKETT STEVENSON, M. D.

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The causes assigned for the hemorrhages in placenta previa have seemed to me inadequate, as I have attempted to explain the subject to my classes. For the past ten years I have been teaching a theory or theories that have not as yet found their way into text-books, nor, so far as I know, have they appeared in current literature, save in one instance. There is a partial explanation made in a paper¹ which I found after this paper was finished, and to which I shall refer hereafter.

The point upon which all must agree is that the relation between the placenta and the uterus is disturbed, that the so-called uteroplacental vessels are ruptured and blood escapes. But all are not agreed as to the factors that enter into the disturbance of the uteroplacental relation, nor is there agreement concerning the source of the hemorrhage.

One of the oldest theories is that the cervix forms a part of the uterine cavity, that the internal os is so obliterated by expansion as to leave nothing between the presenting part and the vaginal cavity save the external os; necessarily then, if the placenta were fixed upon or beside the internal os it would be subjected to this continual shifting of its foundation, and hemorrhage would naturally follow.

According to the latest teaching this obliteration of the cervical canal does not occur, excepting occasionally. It is undoubtedly true that in the majority of cases the cervix retains its integrity as a cervix until parturition begins, but it is equally true that in a considerable number of cases the cervix forms a part of the general uterine cavity long before labor. It is not possible that all cases of placenta previa occur in those uteri whose cervical canals are obliterated as clinical experience demonstrates over and over again. Therefore this theory is not equal to the explanation of all cases. Especially it cannot explain the early hemorrhages those which occur before canalization of the cervix has begun.

¹Theory of hydrostatic pressure in early hemorrhage of placenta previa by Maximilian Herzog, Cin. Lancet Clinic, April 25, 1891.

The theory that the uterus grows away from the placenta is supported by high authority. Jacquemin is given credit for this theory and it is accepted by Cazeau, Auvard and others. It is affirmed that the physiological hypertrophy of the uterus does not occur simultaneously in the upper and lower segments, that the superior segment or zone is developed during the first six months, and the inferior during the last three, after the placenta has attained its growth.

That the uterus increases in size during the last three months is indisputable. It is likewise true that this is a real increase and not a mere stretching of the walls, to accommodate the growing fetus.

One cannot believe, however, that this increase of the last three months is due entirely to the development of the lower segment. If the placenta stops growing after the sixth month and the upper segment continues to increase, there would then be cause for hemorrhage in the normal as in the vicious implantation, for surely the uterine tissues at the placental site do not cease while the tissues all around continue to develop.

It is possible that this lack of parallelism between the development of the placenta and the uterine tissue, if it exists, may be one of the causes of the hemorrhages that sometimes occur in normal implantation.

The lower or noncontractile zone of the uterus is noncontractile on account of the paucity of muscular fiber in that zone, but we have no positive evidence that the muscular fibers, though comparatively few, do not take on development with the beginning of pregnancy. Indeed the development of the cervical tissues is one of the very first signs of pregnancy, and one cannot understand why the fibers of the lower uterine zone should be omitted from the general development, at all events, this theory, if true, does not explain the hemorrhages that occur during the first six months. Legroux quoted by Auvard² holds directly the contrary view from Jacquemin, maintaining that the placenta grows away from the uterus. So that whether the uterus grows away from the placenta or the placenta from the uterus is still in question. When one takes into consideration the power of adaptability of the placenta in abdominal, ovarian and interstitial gestation, the lack of parallelism in development loses force as an argument. Even tubular gestation goes on in perfect adaptation until the limit of the development of the tube is reached. Why

² *Traité Pratique d'Accouchement.*

the lower uterine segment should not respond to the physiological demand is certainly without a parallel in other abnormal situations.

According to my own observation the lower segment does respond to the placental implantation to the very utmost, and therein lies the danger. This is really the key to the question. This extravascular development of the lower uterine segment is dangerous for two reasons, first the course of the uterine arteries and veins, second the law of gravity, or rather these first two might be considered under the one head, gravity, and a second reason is found in the lumen of the parturient basin.

Given gravity and a tube open at the bottom, every solid or liquid that occupies or impinges upon the lumen of that tube must sooner or later be expelled. Especially must this be true of liquids. First there is the general law of gravity acting more or less upon all the vessels and even organs below the diaphragm. This is so well known and understood that there is need for special study concerning the diseases and dangers of the upright position in man, as pointed out by Clevenger.

It goes without saying that if the pregnant woman occupied the position of quadrupeds many of the complications of pregnancy would never occur, or they would be favorably modified if occurring.

As to the action of the uterine arteries and veins, one has but to glance at their general course to and through the uterus to see how they contribute to the difficulty. The uterine artery enters the uterus near the neck and pursuing a very tortuous course passes upward to join a branch of the ovarian. The arterial blood reaches the normal placental site by an indirect tortuous route against gravity, whereas the arterial supply to the previa is almost straight from the internal iliac and a hemorrhage from that zone is almost like tapping the aorta.

Rigby quoted by Hirst³ reports a fatal case of hemorrhage in which the separation of the placenta was no larger than a crown piece.

The new arteries formed to supply the placenta in the lower uterine zone are too directly connected with the main branch for safety. The general direction of the uterine arteries is across the body of the uterus, while the general direction of the veins is longitudinal. This is the best possible arrangement when the placenta is near the fundus as we shall see further on.

There is no necessity for farfetched theories, the question is

³Am. System of Obstetrics.

one of mechanics, purely. We see what havoc the so-called intra-abdominal pressure makes in driving down and out the uterine, vesical and rectal zones. These phenomena analyzed mean gravity and the pelvic outlet. We have in these displacements nearly all the mechanics of parturition carried on, minus uterine contractions. The uterus, the bladder and the rectum correspond to the fetal body and expulsion is brought about by gravity acting through an open channel. All the supports from above weaken and gradually yield to the one constant force, viz., pressure from above, weight, gravity, or in intra-abdominal pressure, whichever name it may be given.

To this situation in pregnancy we must add the special uterine contractions which begin at the fundus, even in the first weeks of pregnancy, and proceed downward toward the cervix, and which at their maximum intensity have been estimated to exert a force all the way from twenty-five to five hundred pounds. Consider also the so-called intrauterine or hydrostatic pressure so ably described by Maximilian Herzog.⁴ This pressure of the amniotic sac upon the fetal face of the placenta is described by Poulet⁵ as equal to eight centimeters of mercury.

Why the placenta in its normal place is not disturbed by this pressure is because the uterine wall offers a counterpressure, while the opening os uteri offers no such resistance.

Consider the fragile condition of the coats of newly formed vessels, the uterine placental sinuses having only the single coat of endothelium, and according to M. Costi, the filaments of the placental villi are so frail as to tear even from pressure of the finger.

Winchel states in the last edition that it is hard to tell what produces the lesion of the utero-placental vessels in the early months of pregnancy, when dilatation of cervix is out of the question.

To my mind it is much harder to state why the lesion does not occur, one can scarcely see what there is to prevent it. It is true that the blood vessels are a closed system of tubes, but it is equally true that the most dependent portion of the uterine contents is the newly formed vascular tissue filled with an excess of blood owing to the general law of gravity and to the particular distribution of the vessels, favorable to the prevention of hemorrhage when the placenta is high and the reverse when the placenta is low.

⁴Cin. Lancet Clinic, April 25, 1891.

⁵Dict. Encyclopidic des. Sci. Medical.

The mechanism of parturition acts upon the contents of these dependent vessels as upon the fetal head, and whenever the expelling force, be it uterine contraction, hydrostatic pressure, any or all the factors of expulsion become stronger than the resistance of the utero-placental membrane or wall it must yield and the contents escape. Uterine contractions are expected to be strong enough to rupture the bag of waters, then why wonder that even weak uterine contractions should rupture newly formed blood vessels that occupy the most dependent position in the parturient canal?

In connection with this subject it is well to understand, as far as possible, just what takes place during a contraction when the implantation is normal. In the first place there must be a greater or lesser reduction of the amount of blood both in the uterine wall and in the placenta. The blood, for the time being may be said to be squeezed out of both; but where does this blood go?

Hirst⁶ refers to Barbour's experiments, whereby it was ascertained that the placenta is able to diminish one-half of its area. Hirst thinks the placenta follows the uterine wall until the villi touch such other.

Some provision must be made for the blood during the contractions.

It is my opinion from the study of the direction of the vessels that in the normal situation the blood from the contractile region of the uterine muscle is squeezed into the veins of the lower uterine segment, the veins have a general longitudinal direction and run from below upward, which makes them all the more capable of receiving the blood that is pushed along by contraction.

When the placenta is previa the contractions still begin at the fundus, and the blood from above is pushed into the already over-distended veins of the lower uterine segment. It is no wonder these veins are ruptured at their weakest point, viz., the utero-placental portion.

The very fact there are so few muscle fibers in the lower uterine zone leaves abundant room for the veins to carry off the blood from the upper portion. If the entire uterine wall contracted with the force of the upper portion, it is hard to conceive of the disposition of the blood. In fact, the lower uterine zone down to the entrance of the main venous trunk may be looked upon as a diverticulum for the venous blood of the upper zone. Thus does

⁶Am. System of Obstetrics, p. 629.

the lower relieve the upper segment. It is well also to consider the distribution of the placental blood during a contraction.

Delore⁷ describes two diverticula into which the blood is pressed during the contractions, the first is just below the fetal face of the placenta, the second between the folds of the allantoid chorion wall. It is plain to see how these diverticula can be utilized in a normally situated placenta, but in the condition of previa the blood must be pushed upward against gravity not only, but against the intrauterine pressure.

It is impossible to see how these spaces can be utilized for the retention of the placental blood during uterine contraction. Instead of the blood toward the fetal side of the sinuses being sent further toward the fetus it would receive an impulse in a contrary direction. Thus are all the safeguards against hemorrhage subverted, transformed into causes of hemorrhage.

As to the source of the hemorrhage, both Simpson and Hamilton taught that the chief source was the placenta.

Hirst⁸ closes his discussion of the subject, saying, "it is hardly necessary to state that the bleeding is not from the placenta but from the uterus."

The facts are there is no reason why the hemorrhage is not from both sources. The placental vessels are frequently found full of thrombi, and Winkel⁹ describes a hematoma of the cords, the size of an egg.

As a rule the fetus does not bleed to death, but the reason for it is not that there is no bleeding from the placenta, but rather from the fact that thrombi are so easily formed in the placental vessels. Evidences of arrested placental hemorrhages are found over and over again, in the normal implantation.

As a matter of course, the hemorrhages dangerous to the mother are from the uterine vessels.

In conclusion, there is no necessity for calling to our aid the theory of lack of parallelism between the development of the uterus and placenta, or the canalization of the cervix, excepting as this latter may occur during the latter part of pregnancy. The situation of the placenta at the outlet of the parturient canal, the distribution of the uterine arteries and veins, the everacting expulsive forces, are sufficient in themselves. The other factors, if they occur, add so much more to the difficulty, but they are not

⁷Dict. Encyclopedic Des. Sci. Medical.

⁸Am. Syst. Obst. p. 52.

⁹Text-book of Obstetrics, p. 18.

constant, and therefore should not be set forth as the main reasons for hemorrhage.

Just as surely as water runs downhill, will there be hemorrhage in placenta previa, the blood in the utero-placental sinuses obeying the well-known law of motion in the direction of the least resistance.

VENETIAN BUILDING.

TAPPING OF THE LATERAL VENTRICLES, WITH A REPORT OF THREE CASES.

By J. FRANK, M. D., CHICAGO.

SURGEON TO THE COOK COUNTY AND ST. ELIZABETH HOSPITALS AND HOME FOR AGED JEWS.

The interesting train of symptoms, long known and recognized, of which the principal are nystagmus, general convulsions, disturbance of the respiration, slowness of the pulse, vomiting, coma and death, find a solution in the acceptance of the theory of compromise of brain function by so-called intracranial compression. Whether an actual elevation of intracranial pressure be present, or whether the symptoms have their foundation in irritation of brain elements, by increased transudation concerns no less than the possibility of restoring brain function in part or in whole, by removing collections of cerebro-spinal fluid, blood, pus, or foreign matter. That this can be done practically upon the operating table with the same gratifying results as in the experimental laboratory, has become a well-known fact. It is therefore not strange that operators should have adopted means of reaching compressing agents in the lateral ventricles there known to exist.

Tapping for hydrocephalus through the fontanelle is so old a procedure that it cannot be determined who first devised or practiced it. The publishing of the method for tapping the ventricles by means of trephining is of more recent date, and the plans for the same have been technically perfected and shown to be thoroughly feasible and easy of accomplishment.

Dr. C. Wernicke,* in *Lehrbuch der Gehirn krankheiten*, vol. 3, 1881, writes of meningitis. That the disease can get well by spontaneous retrogression. It is therefore often necessary to lengthen life in every possible manner, in order to gain sufficient time that the chance of spontaneous retrogression may obtain. It seems in many cases the cause of death is an effusion into the ventricles, which has the tendency to increase even when the disease is in the stage of retrogression. This can be clinically

determined where the fontanelles are still open. Where the condition of things are plainly announced, operative interference is fully justifiable, the more so, as without it a fatal ending can with the greatest certainty be predicted. In such cases, one will trephine and puncture the lateral ventricles. The returning powerful pulsation of the brain will indicate if the intended result of the operation has come to pass. Where it be necessary there must be no timidity about repeating the operation or eventually performing it on both sides."

Dr. Lowson, of Hull, on April 10th, 1885, before a branch of the British Medical Association, read a paper in which he recounts a case of hydrocephalus in a boy seven years of age, paralyzed, blind, in constant pain, affected with occasional epilepsy, but intellect unimpaired. The skull was drilled, fluid aspirated and constant drain established by means of a silver cannula to the end of which rubber tubing was attached leading under carbolic acid fluid in a bottle placed lower than head. Rapid improvement with some movement of limbs and some vision was noticed. In his sleep patient pulled out the cannula twice; the last time it could not be found. Died comatose the day after, the eighth after operation. Silver cannula found in the ventricle.

Dr. Phillip Zenner, of Cincinnati, in a paper on Tumors of the Brain, read before the Academy of Medicine, February 1, 1886, referred to tapping the ventricles as a palliative measure in some cases of tumors of the cerebellum, and reports a case in which the proposition to do the operation was circumvented by sudden death of the patient; the autopsy of the case made clear the certain benefit to be derived from such interference.

Ernst von Bergmann, in *Die Chirurgische Behandlung von Hirn Krankheiten*, writing of the operative treatment of acute hydrocephalus from tubercular meningitis, states that "it is not deposit of miliary nodules along the course of the vessels which causes the danger, but rather the inflammation of the plexus and its products; the acute effusions of fluid into the brain cavities. The intracranial pressure through increase of ventricular cerebro-spinal fluid becomes so great that it offers a hindrance and it had an actual obstruction to the entrance and progress of the blood. Naturally comes the thought to draw off the water and thereby unburden and free the circulation."

Von Bergmann then describes the similarity of the deposit of miliary tubercle on the pia and peritoneum, both followed by great transudation. The well-known and unexpected results following

emptying of the peritoneal cavity with retrogression of the tubercular process, led him to think that the same benefit might accrue in puncturing and draining the ventricles. It was this reasoning that led him to operate, July 15, 1888, upon a case of tubercular meningitis in the stage of brain paralysis.

"The patient lay in a deep stupor, with periods of restlessness and groaning; pulse seventy-two and intermittent; respiration of the Chayne-Stokes character with very long intervals; in the contracted left arm, convulsions; eyes closed, pupils dilated and without reaction. Immediately after the operation, pulse 104 regular; respiration forty and regular; evening of same day, patient takes nourishment; the eyes are opened, pupils less dilated and react against light. The patient died, yet the benefit to be derived from the operation was illustrated in a most striking manner."

Dr. W. W. Keen, of Philadelphia, has perhaps done more than any other in bringing the operations into prominence. His achievements have been entirely original, independent of the accomplishments of operators, who have antedated his work.

As he states in the paper published in the *Medical Record* of September 20th, 1890, he was led November 7, 1888, to propose the trephining, puncturing and draining of the lateral ventricles, by the results shown at the autopsy of a case of tubercular meningitis, which had been trephined for supposed abscess, a drainage tube had been introduced and found post-mortem to reach within $\frac{1}{4}$ inch of the distended ventricle, the same having produced no inflammation or irritation.

Dr. Keen reports three cases of his own upon which he did the proposed operation. The first, for threatened blindness from acute hydrocephalus, due to tumor of the cerebellum.

The left side was first trephined and drained, and some twenty days after the right side, irrigation of the ventricles, from side to side, without ill result, was demonstrated in this case. This patient died, the post-mortem revealing a sarcoma of the left lobe of the cerebellum.

The second case was one of hydrocephalus of about three years' standing, the mental condition being poor. The left ventricle was tapped, improving paresis of right arm. Convulsions set in next day, thought to be due to too rapid emptying of ventricle. It was decided to replace the fluid, which being done, had the result of stopping convulsions, this was repeated eight times, each time stopping the convulsions. The autopsy revealed extensive hydrocephalic distension.

The third case was one of unilateral, acute internal hydrocephalus of left ventricle. The patient being in extremis, died four hours after operation. Dr. Keen reports two cases by Mr. Mayo Robson, of Leeds. The first of these a boy of ten years with high temperature, right hemiplegia and aphasia, twitching of limbs of right side, double optic neuritis, operated February 7, 1889, one and one-half inch trephine used over motor centers of right side; no pus being found, a needle was pushed into lateral ventricle and ten drachms of clear liquid evacuated. Patient showed continual improvement; six months later was in good health. The second case was that of an infant with acute hydrocephalus; drainage and relief of patient, which however died the third day after from convulsions.

Dr. Samuel Ayres, on December 4, 1888, operated upon an imbecile child five years old; disease beginning during third month of life with convulsions. Enlarged head with closed fontanelles and sutures, aphasia, total blindness, idiotic smiling, rotary movement of head and grinding of teeth, bowel and bladder incontinence. Had never walked or stood alone. Trephining over coronal suture one and one-half inches to right of median line, distinct pulsation, fine trocar introduced through dura downward, backward and inward, to a depth of two and one-half inches. One ounce of fluid removed from ventricles and smaller quantity from space between dura and brain. Oozing of fluid for several days from puncture in dura. Pulse before operation 120 to 140; after operation 140; temperature 101.8. Child could stand alone two to three days after. Partial restoration of sight; would wink on finger being passed before eyes. In three weeks was gradually able to walk alone across room, less irritable and could sleep well; no development of speech; no control of sphincters; three months after operation continued improvement.

A. Broca, surgeon to the Hospitals of Paris, published two cases in the *Revue de Chirurgie* under the head of drainage of the ventricles for hydrocephalus, one of his own; the other by Thiriar, of Brussels. His own case was one of hydrocephalus with contracture of left arm, drainage of right ventricle, contracture of arm disappeared, object of operation was consequently reached.

Thiriar's was a case of hydrocephalus of three years' standing. Tapping was followed by diminution to circumference of head and a depression of fontanelle. Patient died. Autopsy showed great distension of ventricles.

To these I will add three cases within my own experience.

CASE 1. Charles K., a hod carrier, was struck upon the head by several bricks falling from the second story of a building. He is said to have been completely unconscious immediately after the hurt, gradually regaining partial consciousness, could make efforts at answering questions, and moved his limbs. The disability being deemed of a passing nature he was placed on some boards, in the engine room of the building, upon which he had been at work. At five o'clock P. M., two hours after injury, there was so little improvement shown that he was taken to his home, where a physician advised removal to a hospital. He arrived at St. Elizabeth Hospital at nine P. M., and was placed in my service.

House surgeon, Dr. Palmer, made note of the following: Still dressed in working clothes, a well-developed muscular man, about thirty-eight years old, lay without motion on the table. Pulse 30 to 40, full and irregular; respirations 8 to 10 per minute, irregular and somewhat stertorous. Upon questioning him loudly, he mutters unintelligibly. Pupils dilated, respond feebly to light, and on holding light closely, the lids are shut tightly, seems to have good motion on right, diminution in motive power of left side. Owing to great amount of effusion into scalp, no definite diagnosis of fracture could be made. Several contusions with great swelling above and in front of right ear.

Upon reaching the patient, the paresis of left side was so marked, that it was decided to trephine over right motor centers.

After the head was prepared in the usual way, a U shaped flap, beginning at the frontal eminence running backward to median line four inches and returning anterior to ear, the flap being about two and one-half inches wide. Previous to this, a row of interlocked alternate white and black sutures about one-fourth inch outside line of incision, were tied to control the hemorrhage. The flap separated from the skull was wrapped in gauze and laid upon forehead, exposing a linear fracture, commencing one-half inch to right of sagittal and the same distance posterior to the coronal suture, involving the latter suture as far as the incision permitted observation. A one and one-half inch trephine was so placed that the anterior margin reached the coronal suture and above to within one-half inch of sagittal suture, and a button of bone removed. No epidural clot or hemorrhage, but great bulging of dura, of exceedingly tense feel and without pulsation. A meningeal artery crossing the trephine opening was tied and it made the base of a flap in the dura. The brain substance protruded beyond the skull opening about one-fourth inch, and was with difficulty replaced. At the

moment of bulging pulse and respiration became more rapid, when pressed back pulse and respiration were slower. No subdural clot or hemorrhage as far as the finger could explore, a normal amount of cerebral fluid escaped. On account of the above conditions, a hydrocephalus was diagnosed, and tapping of the ventricles decided upon.

No trocar being at hand, an aspirating needle corresponding to No. 3. American catheter scale was used with syringe attached. The direction of introduction was slightly backward and toward the median line. At a depth of two and one-half inches fluid was reached, the syringe was detached from needle and about three ounces of clear ventricular fluid gradually drained off. No anesthetic was given the patient after the incision through the scalp. After the drainage of the ventricles, the respirations increased to 16 and pulse to 120 per minute. There was a general reaction, the pupils became smaller, paresis was improved and the patient was much more sensitive to pain. Chloroform being necessary in the later stages of the operation. No further drainage was employed than a few strands of wicking, which were passed from the point of brain puncture to the most dependent part of dural and skin flaps. The button of bone which had been kept in sterilized water at a temperature of 100° F. was replaced and the scalp brought together with deep interrupted and superficial continued sutures and an aseptic dressing applied. The operation lasted one and three-quarters hours.

The following morning respiration, were 18 and pulse 120 per minute, temperature 102° F. Patient was comatose; defecated and urinated unconsciously. A five P. M. twenty-six hours after injury and nineteen hours after operation, temperature rose to 105° and patient died suddenly with no marked change in pulse and respiration up to that time.

At post-mortem, the dressings were found dry, save slight oozing; edges of scalp united; the pericrania adherent to button of bone, button adherent to dura and edges of dura united. Upon removal of skullcap, a linear fracture was revealed, beginning as above indicated and extending along the coronal suture to the sphenoid bone, where it divided into several smaller fractures in the sphenoid and temporal bones. On removal of brain from cranial cavity an epidural clot was found under the squamous portion of temporal bones; there was also a similar sized clot beneath right cerebellar lobe, which lobe was softened to a noticeable degree. The brain and meninges were much congested. The ven-

tricles were empty and no trace of puncture was found. That the tapping was justifiable was shown by the improvement immediately afterward. There was sufficient traumatism to cause death. The rise in temperature was ascribed to the extent of fracture, disorganization of cerebellar tissue and resorption from blood clot.

CASE 2. Freddie McC., age thirteen, was referred to me by Prof. Brower, to whom I am greatly indebted. The following history was gleaned: Parents respectively forty-two and forty-three years old, in good health; tubercular specific or malignant family taint denied. Mother has had but two children, the patient and a girl aged ten, who is bright, active and well developed. Until the age of six years the patient was apparently well, though precocious, attended school, learned quickly and easily and was apt at acquiring vices and the use of profane language. In disposition he was combative, and was admired by all that knew him for being clever and cute beyond his years.

The history of present trouble began when in his sixth year and extends over a period of several years. At that time he fell from a wagon, striking upon the back of his head. Nothing was thought of the fall, since the patient was at play soon after. He did not become unconscious, nor was there a sign of external injury nor any complaint of resulting pains. Two weeks after he became sick with a fever, which lasted two weeks, was delirious, head was thrown back and patient at times lay in an opisthotonos position. Intense jaundice developed, the duration of which is unknown. During entire illness there was no incontinence. Convalescence was slow and during the period of three months patient was fretful and peevish; grasping the head with both hands, would cry out in pain. He had delusions of varied character and spoke disconnectedly. In the third month after beginning of disease, patient began to stammer in his speech, and had disordered and involuntary muscular movements and twitchings of face, trunk and limbs. These increased to the extent that the child was unable to walk or stand and received many hard blows from falls in consequence. A physician declared it to be chorea. In about one year the patient gained sufficient strength to walk fairly well; but became subject to epileptoid seizures. So when walking or standing the patient would fall and be unconscious for a moment, without convulsive movement; would however immediately get up and pursue the subject of occupation. These continued about one year and were followed by spells, during which patient seemed unconscious, the countenance staring, face flushed followed by pallor. Patient

had an ataxic walk, descended stairs with great difficulty and was sleepless. The application of faradic current improved growth. The power of speech was lost gradually to the extent that only single words could be articulated, mamma, papa, the name of the little sister and a few profane words. He was irritable and would laugh and cry without apparent cause. He was sent to school for a short time but was unable to acquire anything.

There was at this time, incontinence of urine and feces, but at the present time, he indicates the calls of nature.

The boy is well developed and muscular, forty-two inches high, without pubic or axillary hair, which is unusual for a child of that age.

The reflexes were found to be normal, except exaggerated knee jerk; the walk is spastic, can walk alone but a few steps. His lateral symptoms are present, the right side affected more than the left. Has habit of chewing right thumb, upon which callous has formed. Pupils are widely dilated and do not react to light; a critical examination of them cannot be made on account of the restlessness of the subject. Patient has occasional rise in temperature and vomiting. Pulse irregular, from 60 to 70. Respiration 14 to 18, irregular and sighing.

Diagnosis. Idiocy following hydrops of the ventricle in turn due to chronic inflammation of the ventricular lining, as a result of cerebro-spinal meningitis. It was proposed to tap the ventricles. After due consideration it was accepted by the parents, to whom the dangers and uncertain results had been explained.

The operation was done May 4th, at 11 o'clock A. M. Drs. Luken, Beck, Holland and McKay being present, beside the house staff. Keen's posterior route for reaching the ventricles was selected, and it was decided to do it upon the left side.

The alternate white and black interlocked hemostatic sutures were used. A U-shaped flap was made and separated from skull, wrapped in gauze and laid to one side. With a one and one-half trephine there was removed a button of bone, the anterior margin one-half inch posterior to coronal suture, the upper margin one and one-half inches from sagittal suture. The button was kept in sterilized water at a temperature of 100°F. The dura opened, a trocar, size No. 3 American catheter scale, was introduced almost directly downward, slightly forward, to base of skull. The ventricle was reached at a depth of one and one-quarter to one and one-half inches, as was shown by the outpour of clear ventricular fluid, of which six to seven ounces escaped. A grating feel upon the trocar

gave the impression that there might be present a ventricular calculus. In order to explore the cavity, the handle of a scalpel was passed alongside the trocar, a pair of closed forceps were introduced, through the opening thus made, without being able to detect anything unusual. The index finger was next inserted into the ventricles with no better result. It is, however, noteworthy that this can be done with safety; also, that while the finger was in the brain, there was great depression, weak and slow pulse and respiration, which improved upon withdrawal. A drainage tube, one-fourth inch in diameter, was passed into ventricle, and through the posterior part of wound. The ventricular fluid flowed freely and with distinct pulsation.

The dura was sutured with catgut and button of bone replaced, the scalp sutured, and a sterilized dressing applied. Time of operation was two hours. Before removal from the table there was noted a paralysis of right side, which persisted until death. The pupil of right eye smaller than left. Patient placed in bed lay very quietly, passed urine involuntarily, but indicated to his mother when his bowels were to move. He recognized both his father and mother.

On day of operation, at 5 P. M., pulse 110; respiration variable and irregular, between 40-50, temp. 102° axilla; 8 P. M., pulse 120; respiration variable and irregular, between 44-55, temperature 102° in axilla; May 5th, 8 A. M., pulse 100; respiration variable and irregular, 40, temp. 101.5° in axilla; 3:30 P. M., pulse weak, could not be counted; respiration 56, temp. 100° in axilla. At 8 P. M. patient was brought to dressing room to have a new dressing applied, the old being saturated with ventricular fluid. Upon exposure the wound was found in good condition. The edges of scalp united. The drainage tube was freely movable and discharged clear fluid with distinct pulsation. The external wound was cleansed and dressing applied. Patient seemed more comfortable. At 11:30 P. M. died quietly without convulsion.

Post-mortem was held the morning of the sixth of May. The body was rigid, and the toes of the right foot were extended; the corneae of both eyes were opaque.

The dressing was removed, and no signs of sepsis were visible here or in any part of the wound. The sutures in the scalp were cut, and slight union was found throughout. There was also slight union between pericranium and cranium; also between pericranium and button. Button was adherent to the dura. One catgut suture in the dura had untied itself. The edges of dura were

united and there was no signs of hernia of the brain. During the entire examination there was a free flow of ventricular fluid.

The cranium was very thick, the button of bone being five-eighths inches in depth. The cranium sutures were raised above the surrounding bone. The following pathological and anatomical description of brain and meninges was kindly furnished me by Dr. Beck, of this city :

The dura mater is much thickened; the inner side is smooth. The inner membranes are nowhere adherent and are easily removed. On the left side of the skull, about four centimeters from the median line and in front of the coronal suture, in fact, entering it, is an oblique opening in the skull about two centimeters in diameter. This was traversed by a band of solid connective tissue, which is united to the pericranium on the outside and the dura internally. The convolutions of the brain are narrow, especially in the parietal and occipital lobes, some of them being only three and four mm. broad, but the sulci deep. The convolutions are more ramified than usual, so that the normal configuration of the gyri and sulci is disordered. The island of Reil on both sides is softened and does not show any distinct gyri. The brain case is normal as regards the array of vessels and nerves.

The gray substance of the brain is very thin.

Both lateral ventricles, as well as the third, are enlarged to double their normal size. The ependyma shows the most remarkable change. The surface has the appearance of so-called chagrin.

The cerebellum is disproportionately large to the cerebrum.

The microscopical examination of a part of tissue taken from the lateral ventricle where the chagrin tissue is most developed shows the following from within out. The ependyma is thickened and undulating; under this is a dense layer of connective tissue, and beneath this a zone of infiltrated leucocytes, both of which are characteristic of a chronic inflammation. The brain tissue is normal.

Might add that the convolutions along the fissure of Rolando on the left side are very much lacking as can be seen in the specimen.

The pathological diagnosis is as follows: A partially defective cranium, micro gyri, and a chronic internal hydrocephalus.

CASE III. Michael Poten, age six years, born in U. S. of Polish parents, was admitted to St. Elizabeth's Hospital October 30th,

1893. His family history is good, having three brothers and one sister, all healthy.

History of case. Up to last June nothing unusual had been noticed about the child, and he appeared to be as intelligent as other children of his age. In the early part of June, while at play, he was struck on the left side of the chest by a ball. Although taken home immediately, he did not lose consciousness, and did not appear to be severely hurt. On the following day, however, he appeared at times to be delirious, and had several slight epileptic seizures. A physician was called and treated the case. During the following four weeks no recurrence of the spasms, but the child remained in bed most of the time. Then the child was seized with an epileptic attack lasting an hour, and the following day had four slight attacks. After this the boy had from one to four attacks daily, and in August and September they became more frequent still. Shortly after the accident the child began to grow stupid, talked very little and seemed to lose his memory for words. At times he would be very restless and run about "like a cat in a fit." He frequently complained of pain in left side where the ball had struck him. During all this time his general health remained good. When he wished to urinate or go to stool would let his mother know his desire. He would ask for food and drink, and amused himself with simple toys and the like. During the night he would sleep for short periods only.

At time of admission to hospital, Oct. 30th, boy seemed to be fairly well nourished, but stupid, did not talk; was cross and peevish, and to keep him quiet it was necessary to strap him in bed. Had a few attacks of "petit mal." He drugged, and I believe he had slight paresis on the right side.

I decided to tap the ventricle from a point which I think had not previously been selected, in order to satisfy myself that it is unnecessary to take any conventional route. I determined, therefore, to enter through the squamous portion of the left temporal bone.

On Nov. 8, 1893, the operation was done. Interlocked black and white sutures were run through scalp, just external to proposed line of incision to prevent excessive hemorrhage. Incision was then made in the shape of a horseshoe over left ear; and scalp being partially detached at margin of proposed bone flap, a groove in the bone was made one-fourth inch internal to scalp incision. This piece of bone was then fractured at its base, by introducing an elevator at its summit, and turned down without further detaching

the scalp. There was an immediate pulseless bulging of the dura through the opening in the skull, indicating pressure.

Dura was then incised one-fourth inch internal to opening in skull, ligatures having been previously passed around two branches of the middle meningeal artery, and the brain substance exposed. The long trocar, which you here see, was then pushed through the brain substance, in the direction of the lateral ventricle until resistance ceased, when the obturator being withdrawn one and a half ounce of fluid came away, followed by some dribbling. Trocar being again introduced at another spot, obturator withdrawn, another ounce of fluid was obtained. Horsehair drainage was then introduced, and cannula withdrawn. The dura was sutured with catgut, and a notch being made in skull flap for the exit of horsehair drain, the flap, consisting of bone and scalp, was replaced and the scalp sutured. In suturing the scalp, the horsehair drainage was accidentally pulled out. The interlocked sutures controlling hemorrhage were then removed, and suitable dressings applied to the head.

Patient recovered from the anesthetic in the usual time. He remained quiet for three days and had no epileptic attack. He seemed to suffer no pain. From this time on he showed a gradual increase of intelligence; he would answer to his name and could be amused; he would repeat simple words, and could whistle; he asked for food and the bedpan, for which he would say "water." Each time his parents visited him they would note great improvement. About the third week a spastic condition of the muscles of the right leg and arm became noticeable, which condition has increased somewhat.

December 19, 1893, about five weeks after operation, as the bone did not seem to unite, and slight discharge was present at two small points, a secondary operation was done. An incision following the old one was made, and dissecting the scalp from bone, exuberant flabby granulations were seen between bone flap and skull. The bone flap seemed in danger of necrosis and was removed. This revealed more exuberant granulations on surface of dura, which were removed with a curette. The wound closed nicely and the boy made a rapid recovery with still greater increase of intelligence. The boy has had two or three very slight attacks of "petit mal" daily since the third day after the first operation. I am indebted to Dr. Manney for notes in this case. This case was exhibited before Chicago Medical Society.

Dr. W. C. Dugan, before the Louisville Surgical Society, on December 12th, 1892, reports the interesting case of a lady, fifty

years old, having steadily increasing great pain in head for eight to ten months. Hearing at first slightly, latterly completely lost. Impairment of intellect, slowness of comprehension and in giving answers. Partial paralysis of right leg, incomplete loss of sensation in right arm, twitching of right side of face. Had two convulsions, whether uni or bilateral unknown. Ocular examination reveals double choked disks. Diagnosis of tumor was made, probable seat upper part of fissure of Rolando.

Exploratory operation over left parietal region, button of bone removed, allowing dura to bulge greatly, of singularly hard and inelastic feel. The dura opened, brain tissue welled up as thick as the finger and impossible to return. Hypodermatic needle found no fluid; but on grooved director being passed into ventricle three or more ounces of fluid escaped. As the fluid drained off, the brain tissue receded, and when completed, the finger could be passed easily between dura and cortex. No tumor was discovered.

The grooved director was passed through septum into opposite ventricle without finding fluid, without drainage the patient was dressed and put to bed. Reacted well without shock paralysis and loss of sensation relieved immediately. Hearing has not returned. As the exact pathology of the accumulation of fluid was not understood, it was thought that tapping or aspiration might have to be repeated, on that account the button of bone was not replaced.

Dr. Theodore Diller reports a case operated upon by Dr. R. W. Stewart, for supposed tumor at base of brain, after an injury two years previous. Diffuse headache, drowsiness, left hemiparesis, cerebellar titubation, dysphagia, aphonia, and advanced optic neuritis. Operation to relieve intracranial pressure, find and remove tumor if possible. No tumor or depression of bone found, but great bulging and formidable protrusion of brain indicated intracranial pressure. The ventricle was tapped and two ounces of clear fluid removed; drainage. Left paresis more marked after operation and four to five convulsive seizures. Patient died thirty-six hours afterward. Tumor, a sarcoma about size of walnut on left side of pons, found at post-mortem.

Verified by the results of dissections and trials upon the cadaver, the method of reaching the ventricles has been described in so lucid a manner by W. W. Keen, that little can be added to his article published in the *Medical News* of Dec. 1, 1888. Three routes, anterior, lateral, and posterior, are given with the minutest details. To this paper I would refer those interested.

In a general way, where there is a point of election for reaching the ventricles, either of these routes will make the attainment of the object easy. However, they should not be considered to be the only manner of finding them, nor is it necessary to have recourse to them, when the skull has been opened in a different place for injury or disease. From any point on the cerebral cortex it is not very difficult to penetrate to the normal ventricle, familiarity with its location and conformation being the principal requirement; it is extremely easy, where the cavity has been enlarged, as in chronic hydrocephalus.

At the post-mortem of Zenner's case, a trial puncture with a trocar three-fourths of an inch to the side of the median line and about one inch anterior to the line connecting the auditory orifices, succeeded in reaching fluid at a depth of one and one-half inches beyond the dura, but the operator succeeded equally well at several points posterior to this. Broca made a cross incision through the pericranium, and trephined three ctms. above and three ctms. behind the right ear meatus, and introduced the trocar in the direction of the opposite ear meatus. He felt the brain consistence yield at a distance of four ctms., a discharge of clear fluid following. Thiriar, by experiments on the cadaver, establishes the rule: To trephine, seven and one-half ctms. above the meatus auditorius externus, and one ctm. anterior to this line. These varied rules prove the truth of my previous assertion, that from different points on the cerebral cortex, it is not difficult to reach the ventricles.

After the usual aseptic or antiseptic details of preparing the head, a straight, conical, or curved incision, involving a flap, may be made to expose the cranium. A chisel, drill, or trephine, large or small, may be used; if the opening be too small it can be enlarged with proper instruments. The dura may be simply punctured with the trocar, or a dural flap may be made to expose the cerebral surface. This latter has the advantage of allowing closer observation of the cortex and of finger exploration between cortex and dura.

The instrument to be used for the puncture is optional with the operator, and the depth to which it will be necessary to penetrate, will depend on the amount of fluid in the ventricle. Zenner used a trocar, and found fluid at a depth of one and a half inches. von Bergmann used a long exploring needle, and introduced it slowly until cerebro-spinal fluid escaped. Keen, at first, used a grooved director, but later a cannula, No. 13 French, and thinks it less liable than any other instrument to do damage, which is principally the

puncturing of larger vessels. Mayo Robson used a needle, and pushed it onward until fluid began to flow. Broca employed the trocar of a Potain aspirator, and came upon fluid at a depth of four ctms. Thiriar made use of a fine rubber cannula, closed by a button, and penetrated to a depth of five and one-half to six ctms. I have in the one case used an aspirating needle, in the other a fine trocar cannula, No. 3 American. I have devised a cannula with blunt stylet, which will be a useful instrument. In the one case I have penetrated to a depth of two and one-half inches; in the other, one and a half inches, depending on the amount of distention of the ventricles.

Now, the very important question of drainage arises. Shall it be rapid and free, or slow and in drops, and shall there be irrigation?

The question must be decided for the individual case, as the requirement for each must necessarily differ, depending on the conditions to be met.

If the effusion into the ventricles is the result of acute and still active inflammation, decompression by rapid removal of fluid and subsequent continuous drainage until the acute stage subsides, or repeated tapplings without drainage would be the rational procedure. If the inflammation be in the stage of retrogression the artificial removal of the fluid by simple tapping, without drainage, will be all that is required.

In cerebellar tumors or other conditions, blood clot from trauma, etc., compromising the circulation to the extent of bringing about a hydrops ventriculi, if the condition be recent, rapid and continuous drainage; if it be of longer duration, with great amount of fluid, where the brain tissue is, or may be atrophied, tapping and slow continuous drainage or repeated tapplings would seem to be indicated. In chronic hydrocephalus with great distention of the ventricles, the brain tissue being atrophied and greatly altered in physical relationship, in order to allow of gradual return to something approaching normal conditions, it is best to both tap and drain slowly. That rapid emptying of the ventricles, under these circumstances, is dangerous and may be fatal is well illustrated by Keen's interesting and highly instructive case No. 2. Finally, in abscess of brain breaking into the lateral ventricles the most rapid and free drainage and cleansing irrigations is the only procedure promising relief in that most dangerous condition. In these cases it would be best to trephine and drain both sides and irrigate

from side to side. That this can be done is demonstrated by Keen's case No. 1.

Repeatedappings or aspirations in some cases may advantageously take the place of drainage. The means to secure drainage will be found in rubber tubes of different caliber, gauze, wicking or horsehair.

In special cases, operative procedure could go farther than puncture or drainage; the ventricles may be incised and opened with forceps so that a consistent mass, blood clot or foreign body, might be removed. In my second case a finger was introduced into the ventricle, without any apparent lasting detriment to the patient.

Although it does not strictly come under the heading of this paper, mention is made of a number of cases of secondary spontaneous opening of the ventricles, from trauma or abscess, with draining off of cerebral spinal fluid, for a longer or shorter time. Many of these have recovered, the conditions did not add to the gravity of the disease or injury.

Indications. What is generally understood as brain compression offers the indication for trephining and tapping the ventricles of the brain. That compression can be a sole factor, without other important lesion, in producing death, is amply proven by the careful and interesting experiments on animals, and remarkable results obtained by Dr. P. Deucher, published in the *Deutsche Zeitschrift für Chirurgie*, Leipsig, 1892-3, to which I would refer those interested.

It is true there is no certain method of differentiating compressing agents in the general cavity, the ventricles, or in both together. One such instance has come under my observation, the compressing fluid being drained from the general cavity. Opening of the dura would determine that; perhaps laminectomy, under these circumstances, would be of equal value with trephining.

The compression symptoms have so often been alluded to, in the history of the operation, that it will not be necessary to repeat them.

In the cases so well described by Wernicke, of brain compression, from simple or tubercular meningitis, decompression by tapping the ventricles offers reasonable hope of restoring brain function and maintaining its integrity. The symptomatology points to the fact that compression is often the sole element inducing a fatal termination. It is in these acute cases that the operation is of greatest value and urgently demanded.

When the skull has been opened for compression symptoms, which are confirmed by bulging of dura and protrusion of brain, no tumor, clot or depressed bone being found, it is indicated to tap the ventricles. This was shown in my case, No. 1; in that of Dr. Dugan and that of Dr. Diller. These, although an unrelievable condition underlay the hydrops ventriculi, received an amelioration of symptoms, as was well illustrated in Dr. Dugan's case.

Abscess of brain, which has invaded the ventricles, it is quite clear, demands immediate tapping, and, if possible, irrigation from side to side. This needs no further elucidation or argument. Possible benefit may be received by tapping. Chronic hydrocephalus, where there is but little enlargement of head, symptoms denoting a compression, moderate in extent and severity. This was well illustrated in Ayres case, in which the compressing agent had been active for over four years.

In tumors of the brain, involving the circulation to the extent of bringing about hydrops ventriculi, it is advisable to trephine and tap the ventricles, when the compressing agent has added to the suffering or disability of the patient, or is a proximate cause of danger to life.

But in chronic hydrocephalus, with enlargements of head, in great distention of the ventricles and corresponding atrophy of brain tissue, it is contraindicated to tap and drain. All cases of this class have died from the operation. One can easily comprehend that under these circumstances no benefits can accrue.

The following summary is offered, in conclusion, trephining and tapping of the lateral ventricles :

1. For distention of the ventricles, from acute simple or tubercular meningitis, it is a therapeutic measure clearly indicated, and other things being equal, promises recovery.
2. For effusion of blood into the ventricles from trauma or disease it makes recovery a possibility.
3. For abscess involving the ventricle, it is immediately and imperatively demanded.
4. For effusion into the ventricles, from brain tumors it may afford relief to symptoms.
5. For chronic hydrocephalus, moderate distention of the ventricle, without enlargement of the head, it may afford relief.
6. For chronic hydrocephalus, great distention of ventricles, enlargement of head it will lead to a fatal result.

CONJUGATE DEVIATION OF THE EYES WITH MIDDLE EAR SUPPURATION.

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Upon June 13th last I was called in consultation to see the following case, on account of the serious symptoms which had supervened three days before. The history of the case was given as follows:

John W., aged 18, had a discharge from his left ear during childhood. This had ceased and remained well until the present attack. After having influenza seven weeks ago, a severe otitis media on the left side with profuse discharge followed. Under treatment he was progressing favorably until three days ago when he had chills, severe pain in left side of head, dizziness and vomiting, since which his temperature has ranged from $\frac{1}{2}$ to $\frac{3}{4}$ ° above normal, but has not exceeded that at any time. It was also noticed that the discharge was less profuse.

Condition present. Patient very weak, perspiring freely. Temperature, 99°; pulse, 120. Dizziness so bad he could not stand or walk alone, having a tendency to fall to left side, and the dizziness did not entirely disappear upon lying down. Moving or rising from the bed was always followed by a spell of vomiting. Pain over left side of head. Mastoid process normal in appearance and only tender upon pressure at one point behind meatus, corresponding to the antrum. Meatus filled with thick creamy pus tinged with blood. After removing this a polypus about the size of a pea was seen projecting through a perforation in the upper part of the membrana tympani and covering a small perforation in the lower part. After removing the polypus with a snare the openings seemed large enough to allow a free exit for the pus. Upon examining the eyes I found that the movement of both to the right was defective, but could be overcome by an effort.

June 14th. The patient felt somewhat better, pain in left side of head had disappeared and the dizziness and vomiting were less severe. Temperature, normal; pulse, slower. The eye symptoms were more marked, as they were unsteady when looking directly in front and could only be moved to right of median line with difficulty. No diplopia. Slight paresis of left facial nerve, more marked at lower part of face.

June 15th. Patient improving, but still very weak and dizzy upon moving. Both eyes were strongly deviated to the left side and could not be turned to right of median line. The impairment in movement was about equal in each eye when tested separately. There was no diplopia and none could be elicited by careful testing. Convergence seemed to be retained for objects when held to left side. Pupils normal in size and reaction. Vision was not perceptibly impaired. Field of vision normal. The paresis of left facial nerve had disappeared.

June 16th. The condition of the eyes was the same as on previous day. Dizziness still continued, but patient could walk without assistance. As the perforations did not allow a free flow of pus I enlarged the lower one by a horizontal incision.

The improvement continued, and the dizziness and ocular symptoms gradually disappeared within a few days, so that when he called at my office two weeks later no trace of any ocular trouble could be seen. Vision was normal and movements of the eyes perfect. The discharge from the ear was less profuse.

The suppuration ceased about a month later, and nothing now remains of the ear trouble but a slight amount of deafness with tinnitus, the perforations having cicatrized.

The important question in the treatment of this case was the cause of the ocular symptoms. Were they due to an affection of the brain or the meninges? and, if so, what was its nature? Or were they only a reflex symptom from irritation of the auditory nerve? In favor of the former view were the severe general symptoms, as the chills, fever, dizziness, and vomiting; but considering the speedy termination of the symptoms after the local treatment, and the peculiar muscular symptoms, I am of the opinion that it was the latter.

In support of this view is the intimate connection of the auditory nerve with the nerves governing the movements of the eye, especially those of conjugate lateral movement. Associated lateral movement of the eyes is under the control of a single nucleus, that of the abducens, or sixth nerve. This nucleus, besides supplying the external rectus of the same side, also sends fibers which, according to most authorities, Fuchs¹, Morris², join the third nerve of the opposite side and go directly to supply the internal rectus, or as Gowers³ believes, go to the nucleus of that portion of the third nerve supplying the internal rectus. This innervation is separate from that governing convergence, which is supplied by the nucleus of the third nerve.

A connection of the auditory nerve and the nucleus of the abducens has been demonstrated anatomically. S. Freud⁴ describes a connection of the vestibular portion of the auditory nerve by curved fibers going directly to the nucleus of the abducens of the same side. Other authorities, as Politzer⁵ and Gower, consider the superior olivary body as the center for reflex movements of the eye, as it receives fibers from the auditory nerve, and is directly connected with the abducens nucleus.

To show the direct connection of the movements of the eyes with aural vertigo a number of physiological experiments have been performed. Cyon⁶ found that operation upon the semicircular canals of different animals gave different results. In rabbits they were manifested principally by movements of the eyes. He also found that they were not compensatory, but came directly from irritation of the nerve. Irritation or section of one auditory nerve would produce a strong deviation of the eyes to the same side. Upon section of the other nerve the deviation would cease.

Lucæ⁷ experimented upon some of his patients by increasing the pressure in the tympanic cavity. He found that by increasing the pressure, lateral nystagmus was produced, and when still further increased to 0.4 atmospheric pressure the eyes were deviated to the same side.

Högyes⁸ showed by a number of experiments upon animals that associated movements of the eyes and dizziness are produced by irritation of the endings of the auditory nerves. He considers that he has demonstrated a reflex cycle consisting of the muscles of the eyes and the ampullary nerves by which a reflex stimulation is transmitted from the labyrinth, to certain ocular muscles. He found that movements were different according to the portion of the labyrinth affected, *e. g.* by irritating the horizontal semicircular canals or ampulle there was oscillation or deviation of the eyes in a lateral direction toward the irritated side.

Baginsky⁹ also produced nystagmus and when the pressure was increased, conjugate deviation of the eyes to the same side, by the injection of fluids into the tympanic cavities of young dogs. He believed that the symptoms were due to the increase of the cranial pressure as the fenestra were always ruptured by the force employed.

Besides these physiological experiments, clinical observation has shown that pressure in the tympanic cavity and irritation of the auditory nerve will produce ocular movements. Kipp¹⁰ saw nystagmus in three cases of middle ear suppuration. It could

be produced at will by syringing the ear or touching the tympanic wall with a probe.

Pflüger¹¹ saw a woman age sixty-five, with otorrhea accompanied by dizziness. There was a polypus in the posterior superior part of the meatus partly attached to the wall of the tympanic cavity. Lateral oscillating movements of the eyes were always produced whenever this was touched with a probe or an attempt made to remove it. Cohn¹² reports four cases of nystagmus with middle ear suppuration. The eye movements could be easily produced by syringing or irritating with a probe. He considers the movements due to a reflex from irritation of the auditory nerve, the inflammation having rendered the endings of the nerve in such a condition as to make this possible.

C. R. Holmes¹³ of Cincinnati reports a case where conjugate deviation of the eyes to the left side with severe dizziness and vomiting lasted about two hours after an operation on the mastoid. The attic and antrum had been opened and the stapes mobilized with a probe. The eyes could be moved past the middle line by a severe effort, but would return at once to the extreme position toward the left.

Dr. Spear¹⁴, of Boston, with the assistance of Dr. Chandler, acting upon the statements of Högyes that the semicircular canals and the vestibular portion of the auditory nerve were a peculiar end apparatus regulating the movements of the eyes, examined a number of ear cases with dizziness and unsteadiness of gait as to their ocular symptoms. The results of their investigations showed an intimate connection of the sixth nerve and the vestibular portion of the auditory nerve. All patients with dizziness had exophoria of varying degrees dependent upon the intensity of the peripheral irritation.

One case, a strong, able bodied man, had a post-nasal hypertrophy of the right inferior turbinated occluding the Eustachian tube, severe otitis media, with a small perforation of the membrane, the exudate causing pressure on the fenestrae, unsteady gait, staggering forward and to the right. He appeared to have complete paralysis of the internal rectus of the right eye with diplopia, as it was strongly deviated outward and could not be brought to the median line. After applying cocaine to the hypertrophy in about ten minutes the patient could converge and walk naturally, and the pain in the ear and side of the head ceased. Another case with swelling of the turbinateds and closure of the Eustachian tube, had a divergence for which prisms had been

given. Upon removing the obstruction to the Eustachian tube the movements of the eyes became normal. These cases were undoubtedly due to a spasm of the external rectus muscle from reflex irritation through the auditory nerve, as Dr. Spear considered it. Why there was not deviation of both eyes instead of one, is hard to explain, unless, as Gowers³ states, there is a center regulating the conjugate movements of the eyes aside from the abducens nucleus, probably the superior olivary body, slight irritation of which only affects the external rectus, but when the irritation is increased the internal rectus of the opposite side, and ultimately the head is deviated.

I have not taken into account here the large number of cases with conjugate deviation due to lesions of the brain, either in the cortex, corona radiata or nuclei. Knies¹⁵ states that conjugate deviation to the opposite side may be produced by irritation of almost any portion of the cortex, but especially the cuneus or occipital lobe, the cortical center for vision; but if the lesion is sufficient to produce paralysis, the eyes will be deviated toward the affected side. But a cortical lesion in this case sufficient to produce a deviation toward the affected side would have been accompanied by some other symptom of paresis or paralysis, or have affected vision to an appreciable extent. Of the large number of cases reported with conjugate deviation due to a cortical lesion, they were all accompanied by some other symptoms, such as deviation of the head, hemiopia, or some affection of vision, and paralysis or paresis of the muscles of the opposite side of the body.

A lesion involving the pons or nucleus of the sixth nerve on the same side, could produce these symptoms alone, provided it was slight enough to only produce an irritation, but nuclear lesions are rarely so limited as that. It is not probable that a nuclear lesion could have been present in this case considering the rapid termination and absence of later trouble.

A basilar meningitis would have affected the nerves during their course and the manifestation would have been that of a peripheral lesion. The sixth nerve would have been affected without the implication of conjugate movement, which is distinctly a cortical or nuclear manifestation.

The occurrence of the facial paralysis is of no special importance, as it occurs very frequently with middle ear suppuration from the extension of the inflammation to the Fallopian tube.

In reporting this case, I do it hoping that while it is unique,

as I was unable to find a parallel case in the literature, it may be of service in calling attention to the fact that reflex movements of the eyes simulating paralysis or paresis, may be due to local affections of the ear. While the cases cited here only touch upon certain points, I think they are of service in justifying my diagnosis of a reflex spasm of the ocular muscles due to irritation of the auditory nerve.

¹Text-book of Eye Diseases.

²Text-book Anatomy, 1893.

³Text-book of Nervous Diseases, 2d ed., 1893.

⁴Monatschrift f. Ohrenheilkunde. 1886 Nrs. 8 and 9.

⁵Text-book of Ear Diseases, 2d Eng. ed., 1893; p. 603.

⁶Annales D'Oculistique, 1876.

⁷Archiv für Ohrenheilkunde, 1881.

⁸Archiv f. die Gesamte Physiol., 1881 and Biologische Centralblatt, 1881.

⁹Archiv für Anatomie und Physiologie, 1881.

¹⁰Jahresbericht für Augenheilkunde, 1888.

¹¹Deutsche Zeitschrift für practische Medicin 1878.

¹²Berliner klin. Wochenschrift, 1891.

¹³Knapp's Archives of Otology, 1893, No. 4.

¹⁴Medical News, January, 1892.

¹⁵Die Beziehungen des Schorgan und seiner Erkrankgen, etc., 1893, p. 76.

MARSHALL FIELD BUILDING.

REPORT OF A CASE OF PLACENTA PREVIA.

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Placenta previa occurs, according to authors, in from one-twentieth to one-tenth per cent of all cases of pregnancy. It is much more frequent in multiparae than in primiparae and about equally distributed among its three varieties—placenta previa, centralis, lateralis and marginalis.

The case here reported entered the hospital April 4th, was assigned to the service of Dr. Sandberg. The patient said that on that day while she was washing she noticed a sudden and quite profuse discharge from the vagina which on examination proved to be blood. She immediately came to the hospital. At the time she arrived there was no hemorrhage; she gave her age as twenty-five, first pregnancy, had never had any hemorrhage until that day, expected to be confined during the month of April. General health had always been good. Examination showed the uterus to be

fully developed and inclined somewhat to the right. Fetus was in the second vertex position, and the head pushed partially over the left brim of the pelvis ; the fetal heart was regular, strong, and the tones best heard half way between the umbilicus and the right anterior superior spine. Patient's general condition was good. Vaginal examinations showed the os dilated enough to easily admit the tip of one finger, which came in contact with a boggy mass reaching well down into the os, and extending upward to the right and posterior. The finger could be easily slipped by the free margin. The previously attached surface of the mass was rough and hard in places. The mass extended 2-3 cm. beyond the right edge of the os and the most prominent part pointed nearly in the direction of the left acetabulum. No attempt was made to determine the extent of the detached area. Nothing abnormal was noted in regard to the pelvis.

A diagnosis of placenta previa lateralis was made which was concurred in by Drs. Thomas and Kortebein. The patient was told to keep in bed most of the time, and to lie either on her back or left side. The nurses were instructed to keep close watch, and in case of any sudden hemorrhage to insert a plug of iodoform gauze in the vagina, and to make firm pressure over the vulva with a compress of gauze; at the same time, of course, to send for the obstetrician. The patient was prepared as usual for confinement.

Between the day of entrance and the time of parturition there were occasional hemorrhages, never alarming in amount, and the blood was always firmly clotted in the vagina. Frequent auscultation revealed no disturbance of the fetal heart.

Labor began about midnight of April 18. At 3 A. M. I was called. The nurse reported that the membranes had ruptured early. The patient was lying on her back, and there were evidences about the bed of considerable hemorrhage. Pains were quite frequent, but not expulsive. Fetal heart in good condition. Firm clots occasionally passed from the vagina. Vaginal examination showed the os probably six or seven cm. in diameter, completely covered by the placenta. Soon after this the vagina was plugged with iodoform gauze. Barnes dilators and forceps were sterilized and kept in readiness. At 4 o'clock the fetal heart was good, pains were not yet expulsive, and the os still lacked somewhat of being fully dilated. The placenta completely excluded the cavity of the uterus from the vagina, and it was only by reaching as far as possible opposite the point of attachment that the

edge could be reached and drawn toward the point of attachment. By that means the head could be felt, and the brow was found to be the presenting part.

All of this time the patient was urged to bear down, but she persistently refused to do so. Called my colleague in counsel and decided not to interfere yet at any rate. About 4:15 the patient began to bear down with a good deal of force; shortly after this on auscultation the fetal heart was found to be very rapid—in fact difficult to count, and when an attempt was made a few moments later to count it, no heart tones could be heard. About fifteen minutes after this there were a few violent movements of the child. There was no serious hemorrhage after this. Pains were frequent and expulsive, and as the head came down it was found that the face was presenting chin anterior. The head and shoulders were born without mishap, but as the breech came away by its own weight apparently, there followed a rush of air into the vagina. Immediately palpating the uterus it was found relaxed, but a little vigorous massage restored its tone and it contracted firmly. After expulsion of the placenta, which was accomplished by Crede's method, the fundus was found to be considerably smaller than is usual even in primiparae. There was no laceration of the perineum to speak of, and there was no further hemorrhage. Labor terminated at 6:30 A. M. Fl. ext. of ergot $\frac{3}{i}$ was given as soon as the afterbirth was expelled, the patient prepared as usual and put to bed.

As soon as the child was born artificial respiration was resorted to and kept up faithfully until it was evident that there was no hope of resuscitation. It goes without saying that at no time after birth was there any attempt at heart beat or pulsation of the cord. The child was apparently fully developed, in good condition, and not exsanguinated; post-mortem examination by Drs. Sippy and Bishop showed the child to be at full term, lungs not congested, right side of heart full of blood, otherwise negative.

The afterbirth came away a few minutes after birth of the child. The membranes had ruptured at the lower border of the placenta. Placenta was 21x25 cm. in its extreme diameter, and was very thin, having an appearance as if compressed. The different cotyledons were separated by distinct fissures, which did not, however, extend through to the amnion. The uterine surface of the placenta showed evidences of having been detached over at least half of its area. The attached portion was of crescentic outline, the convex border being the upper margin of the placenta,

and the concave border the arc of a circle whose center was the presenting part of the placenta, and its radius equal to two-thirds the diameter of the placenta.

The amount of blood lost was probably about 1,500 gms. As it clotted so quickly, very little was discharged in the fluid state, thus enabling us to estimate the amount with some degree of accuracy.

Immediately after delivery the patient was very pale—face and lips almost colorless; pulse rapid and weak. Six hours later her pulse, temperature, and respiration were 124, 102 and 20 respectively. Four hours later they were 132, 102 and 32. Patient complained of pain in right groin, and of feeling very weak; elix. iron, quinine and strychnine $\frac{5i}{\text{every four hours}}$ was ordered. After that her pulse and temperature gradually went down until six days after delivery temperature was normal, but the pulse has been somewhat rapid even to the present time. Color has improved, and with the exception of a slight cold the patient has made an uninterrupted recovery. 1. In looking up the subject we find that none of the recognized predisposing causes of placenta previa could be demonstrated in this case. Special inquiry was made in regard to endometritis, but no history pointing that way could be obtained. 2. At the time of the first examination, two weeks before labor, it was possible to look at the condition either as a case of placenta previa marginalis, which after detachment of the lower portion, had slipped down partially over the dilated os, or as a case of lateralis which had become detached by the dilating os from the point opposite the area of its chief attachment. The latter view seems the more rational. First the os was partially dilated, which, in case the placenta were attached all around the internal os, would have necessitated a separation of the placenta. Secondly, it is quite evident there was no shortening of the lower uterine segment to account for the projection of the placenta from its point of attachment.

3. The lateral attachment of the placenta and rapid coagulation of the blood, pointed against very severe hemorrhage, therefore was regarded as favorable for the mother and secondarily for the child. 4. As the fetal heart did not show any signs of weakness after successive hemorrhages, it was considered as proof that the blood was from the maternal sinuses, and not from the placenta; and of course would make the prognosis for the child more favorable. 5. The fact that the placenta was on the right and posterior side of the uterus, and the fetal head appeared pushed to the opposite side, suggested the possibility of the position of the

fetus becoming transverse instead of vertical, which would make the prognosis less favorable for mother and child; hence the advice to the mother to lie on the right side.

6. If the first examination had been made after labor was well along, it is likely that a diagnosis of placenta previa centralis would have been made, as the conditions then present corresponded exactly to Winckel's description, viz.: if the placenta still covers the os after it is well dilated. Furthermore, it showed that the placenta had been to a great extent detached and displaced, without serious injury to the fetus, and that it was not unlikely that the placenta might be born first, of course, with disastrous results; consequently an attempt was made to form an opening for the head by drawing the free margin of the placenta toward its attached point.

7. When the head was first felt after labor had begun, the brow was presenting, later it became a face presentation; so this should be considered as originally an occiput presentation, and the cause of the spontaneous transverse rotation was the increased resistance offered the occiput by the placenta.

8. There was very little blood lost after the death of the fetus. This, of course, is only a coincidence, the arrest of the hemorrhage being due to the pressure of the fetus upon the bleeding surface of the uterus. The fact that the fetal heart was never disturbed by the previous hemorrhages, that its failure was very rapid, together with the appearance of the fetus and the results of post-mortem examination, would tend to show the cause of death was asphyxia rather than hemorrhage. This, then, must have been due either to a sudden detachment of a large area of placenta, or to pressure upon the attached placenta or its communication with the umbilical cord. There was no great loss of blood at this time, as would be expected if a large area were suddenly detached; beside, it is hard to see what force could have produced such a detachment at that time. The unyielding back of the fetus lay adjacent to the placenta, therefore we are led to believe that the pressure on this part, or that part connecting with the cord was the cause of the asphyxia. This suggests that if the back had pointed in an opposite direction, the result to the child might have been different. Should not this be taken into consideration in making a prognosis, or perhaps in treatment?

At the time the fetal heart became rapid it was of course considered as an indication for immediate extraction; but the os was not fully dilated. Forcible dilatation and extraction with the

necessary anesthesia would have rendered the dangers to the mother from hemorrhage much greater; and the increased liability to sepsis was also taken into account. At that time the chances for the child seemed very small at best. It is easy to imagine cases where the opposite procedure would be indicated, but in this case the very slight chance of saving the child would not seem to warrant exposing the mother to the unavoidable additional risks. This is a point however on which the conditions of no two cases will be similar, neither will the opinions of those interested agree.

FIVE CASES OF HEMIPLEGIA WITH MOTOR APHASIA.

By D. D. BISHOP, M. D.

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CASE 1. J. C., colored, aet. about twenty-four years. Admitted to hospital December 1, 1893.

Family history, good. Personal history, always well except for a lesion on penis one year ago followed by an eruption upon the body. Two weeks ago, his friends say, he first noticed a weakness in the limbs; could not walk well; at the same time noticed difficulty of speech. These symptoms grew gradually worse. After four days all power was gone in the right arm and leg, and he was wholly unable to talk.

Examination shows a well nourished, muscular man, who appears in perfect health save for his paralysis. There is complete paralysis of the right side of face and tongue, the right arm and leg. The patella tendon reflex is exaggerated and ankle clonus is present upon this side of the body. Skin sensation is everywhere normal.

The power of speech is entirely gone. When asked a question the patient endeavors to reply, but only makes an unintelligible noise. He evidently understands and knows what he wishes to say, for when asked to indicate certain numbers with his fingers he does so readily, and can write his name quite well with his left hand, although he has always written with his right. The condition being considered as possibly due to syphilis, patient was placed upon Potas. iodid. gr. xx. four times daily, gradually increasing up to 80 grs. at each dose. When this dose was reached it was gradually reduced to the beginning dose. His general condition improved from the beginning; the paralysis became less

marked so that now he walks about the ward dragging his right foot slightly. He can now move the fingers and forearm of the paralyzed side to a moderate degree. There has been but little improvement in the aphasia. He can now say "yes" or "no" with difficulty, but nothing else intelligibly.

CASE 2: D. D., aet. fifty-five. Married; Russian; occupation, tailor.

Patient cannot speak the English language, so only a brief history was obtainable. Family history, good. Except for rheumatism he has always been well himself up to two months ago. Does not drink. No venereal antecedents.

His present illness began two month ago, when it is said he fell suddenly to the ground while walking on the street. From this time on, the right side of the body was paralyzed.

When examined the patient showed the usual signs of right sided hemiplegia, with accompanying motor aphasia. No disturbances of the heart and other viscera were demonstrable. The superficial vessels slightly thickened.

Under antisiphilitics no improvement has occurred except for slight increase in the motor power in the leg. There seems to be no improvement in the aphasia. This, however, was never total. He can talk some, but the act is performed with difficulty, and some words he either cannot recall or cannot pronounce from lack of coördination. This may be only amnesic aphasia. He understands well, for he replies to questions by gestures. A very careful examination of his mental condition was precluded from his inability to talk English, and even an interpreter could not understand him.

CASE 3. Wm. S., aet. thirty-three; Irish; married; occupation railroad brakeman. Admitted to the medical ward Dec. 25, 1893; was previously treated in the surgical ward. As far as obtainable his history is good except for a "chancre" nine months ago which lasted three or four weeks. No secondary symptoms were ever noticed.

When admitted to the surgical ward where he was sent for stricture of the esophagus, he complained of a peculiar dull feeling all over the right side of the body. Says he had one "fit" previously. His esophagus stricture was dilated; three hours later he had a convulsion, which was immediately followed by paralysis of the right arm and leg and right side of face and tongue. He came under my care a few days later.

Examination shows nothing save the hemiplegia and an accom-

panying motor aphasia. He can talk only with great difficulty and this he does only in answer to questions. His speech is hesitating and performed slowly. He understands well and will perform certain acts when requested. He can also write his name with his left hand quite well. At times he claims he cannot swallow but always succeeds when food is given him. It is also noticeable that when in a passion he does not have so much disturbance of speech as at other times. He has only been in the ward a few days, not long enough to respond to the antisyphilitics he is now taking.

CASE 4. August H., male aet. fifty-seven; widower; occupation laborer; German; admitted to the hospital Nov. 8, 1893.

Owing to his inability to talk no accurate history was obtainable. He managed in answers by gestures to indicate that he had been ill only a few days, his illness commencing suddenly.

Examination. General condition good, no organic changes in heart or kidneys. He understands questions well and replies by gestures; can write his own name and make certain letters assigned to him. There is loss of motion of the facial muscles of right side, the tongue is protruded to the right, and the right pupil is slightly dilated and sluggish. Motor power is completely lost in right upper extremity and limited in right lower. The deep reflexes of the leg are exaggerated. Cutaneous sensation is perfect. Bladder and rectal functions undisturbed. There are no evidences of syphilis anywhere. The radial arteries are firm but do not feel calcareous. Diagnosis: Hemorrhage into the left motor area, no treatment whatever was given except rest. The patient improved rapidly so that at the end of two weeks he could speak a few words. He has regained the power of leg so as to move it about quite freely, and the arm to a slight degree also. Improvement was rapid until discharged from the hospital at the end of forty-one days; he was then able to pronounce a good many words and answered questions well. He could then walk dragging the foot slightly and could lift his paralyzed arm to his head.

CASE 5. Female, Elizabeth P., aet. sixty-two; widow, English; occupation, cook. Admitted to the hospital October 5, 1893.

Family history. Says her mother and sisters died of heart disease. She is the mother of two children both of which died a few days after birth. Has suffered considerably of rheumatism. She dates the beginning of her present illness back four weeks when she first noticed indefinite pains in various parts of the body, and was rendered unable to walk. A few days later she expe-

rienced difficulty in talking, and has since lost the muscular power of the right upper and lower extremities.

Examination. Poorly nourished; eyes entirely negative; tongue deviates to the right. Cannot move the right upper nor lower extremities; cutaneous sensibility normal. She can only say a few words and these hesitatingly, the act being performed with difficulty. The ability to write was not tested.

Upon both knees and anterior surfaces of legs there are several pale syphilitic scars, the site of lesions which first appeared two years ago. Upon the left wrist and elbow there are a number of large flat syphilitic papules, which are arranged in groups showing a serpiginous outline. The heart gives no abnormal signs except for accentuation of second aortic sound. The urine contains considerable albumen but no casts. Vessels rather firm but not calcareous.

Diagnosis. Hemiplegia due to some syphilitic lesion, in the left motor area. Antisyphilitic treatment was instituted.

After ten days, urinary retention and incontinence of feces began which persisted until death. On November 8, I was called to the patient; the nurse stating she had just had a convulsion. I found that while sitting in a chair beside her bed she suddenly became unconscious. When I came she lay with her face turned to the right, eyes deviating in the same direction; pupils dilated and fixed; breathing labored and stertorous; right arm and leg in a state of spastic rigidity. This condition lasted three hours. After consciousness returned the right-sided paralysis was more marked than before; loss of motion being complete. The deep reflexes were exaggerated, but the skin sensibility intact. From this time on she failed rapidly, became very emaciated, large sacral bedsores developed, the sphincters became totally paralyzed and she died December 24. The aphasia which had improved slightly before the stroke of November 8, was total afterward and did not improve.

At the autopsy which was limited to the head, there were found numerous patches of endarteritis in the vertebral and basilar arteries and all the branches of the circle of Willis were in a similar condition. Just at the point of branching of the left middle cerebral high up in the Sylvian fissure, the vessel seemed to be wholly occluded. Whether this was an obliterative endarteritis was not determined, as the specimen was preserved for microscopic examination. Two areas of white softening were found in the cerebrum; one on the right side in the front part of the centrum ovali,

the other on the left affecting both the cortex and white matter just beneath the motor area.

Judging from the post-mortem findings this would seem a case of obliterative endarteritis and probable thrombosis of the left middle cerebral artery, followed by softening of the area deprived of blood. The softened area in the right hemisphere, is also interesting as it gave rise to no symptoms. This probably involved the so-called still area.

The cases are presented not as a rarity, but as illustrations of the courses taken by the various cases of aphasia occurring in the wards during the past three months. They present the uniform coexistence of hemiplegia and motor aphasia. As to the effect of treatment one recovered with no treatment at all, while the others seemed benefited by the use of antisypilitics; probably these would have done as well without any treatment. The very extensive endarteritis found in Case 5 is also noteworthy.

I am indebted to Dr. Archibald Church to whom the above cases were assigned for the privilege of reporting them.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. JOHN A. ROBISON, WILLIAM T. THACKERAY, EDMUND J. DOERING
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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Society Proceedings.

THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held Jan. 8, 1894, at the Schiller Club, with Vice President Moyer in the chair.

The minutes of the preceding meeting were read and approved.

The Committee on Membership reported favorably on the application of Dr. E. H. Tinen, Cook County Hospital, and on motion he was elected by acclamation, as a member by courtesy.

The applications of Drs. F. A. McGrew, Interne, C. H. Graves and Robert Graves were read and referred to the Committee on Membership.

The resignation of Dr. Wm. Bein was tendered and accepted.

The Committee on Necrology made a report on the death of our late member, Dr. R. G. Bogue. Dr. Jno. Bartlett also read a sketch of the life and character of the deceased. Resolutions of respect and condolence were then offered and adopted by the society.

Dr. JACOB FRANK read a paper, see page 89, entitled,
TAPPING THE LATERAL VENTRICLES OF THE BRAIN, WITH REPORT OF
CASES AND PRESENTATION OF A PATIENT.

Dr. RICHARD DEWEY: Dr. Frank has presented a very thorough study of this operation of tapping the lateral ventricles in cases

of hydrocephalus, and others with or without complications; and has also given us three very interesting cases occurring in his own practice. The operation is one that is worthy of the fullest study, and experience will determine what are the conditions in which it is applicable. Notwithstanding the fact that the results of this operation have been to a certain extent discouraging, it is still worthy of wider application in suitable cases; for we must remember that many of these cases, which have been operated upon, in any event were bound to be fatal. The operation, in several instances, brought about amelioration, but the disease was at a stage, or of a nature, which must progress and terminate fatally. It cannot be doubted that properly selected cases of hydrocephalous at the right stage may be relieved, and even a cure effected. In all of Keene's four cases, although fatal sooner or later, decided amelioration resulted, and in the doctor's own cases, two out of three proved fatal; yet there were three or four of those which he read, in which the patient for a longer or shorter time was found to have undergone decided improvement, and even cures effected.

It is desirable that greater accuracy and fullness be given in reference to the later condition of the patients, and also information covering a greater length of time. It is not satisfactory to say that recovery has occurred, as in Brokow's case, within fifty days, and the child was mentally and physically well. The cases of Mayo Robson, and especially that of Dr. Dugan, are recent; the latter being an operation on a woman over fifty years old, who was for years the victim of very severe and constantly increasing headache, with symptoms of hemiplegia; this patient was relieved and reported well a year after the operation.

The time of the operation needs to be shortened to the utmost possible extent; that seems to be one cause of fatal results in many cases of young children who have been operated upon in this way. In reference to drawing off the fluids, it is very instructive to notice, as Dr. Frank quoted from Dr. Keene, the return of the fluid after it had been withdrawn arresting convulsions, this being repeated eight times.

Dr. Frank's first case in an adult, was of a traumatic nature and it was evident, from what was shown at the autopsy, that tapping of the ventricles could produce no relief that could be permanent, as there existed clots at two or three points upon the surface of the brain. The doctor suggests that opening the ventricle may be done in certain cases and the finger may be introduced; it seems

to me that is a practice involving some hazard, not probably from danger of producing inflammatory disturbance, as the brain seems to be very little subject to inflammatory results from violence of this kind, but by the destruction of radiating fibers; the destruction of any considerable mass of radiating fibers over the cortex, would necessarily be followed by paralysis which could not be repaired. The case the doctor mentions showed a right hemiplegia from the time of the operation, and possibly as the result of the introduction of the finger.

Dr. ARCHIBALD CHURCH: Regarding the first case, I want to point out that in severe head injuries, not only do we have a bulging of the brain upon opening the skull, but an increased quantity of cerebral fluid in the ventricles usually, and the bulging of the brain is not an index that we will necessarily find the ventricles distended. I was associated with Dr. Fenger in a case ten days ago, where a man was struck on the head with an iron spittoon, and the symptoms lead to suspicion of hemorrhage, but when the skull was opened no hemorrhage was found. There was very marked bulging of the brain into the cranial opening, and it seemed as though on opening the dura a hernia must produce itself on the spot. In this case ventricular tapping with a long aspirating needle secured less than a drachm of fluid.

I have seen three other cases where the head was opened shortly after the concussing injury, and the same condition of increased pressure within the skull was present. I believe that the concussion acting as a shock element produces an anegeo-paralytic state which conduces to an edema of the brain involves the ventricles, and as a consequence there is bulging. In those cases, while the tapping may do good, a sweeping rule cannot be laid down.

Heretofore plans for continuous drainage of the cerebral fluid in hydrocephalous cases have eventuated almost invariably in the death of the patient through a septic process, which is favored by the drainage channel, the cerebral fluid being a perfect culture medium. Frequent tappings have similarly led to infection and death. Tappings in the spinal column reaching the rachidian spaces and relieving the intracranial pressure, have also had this termination. It becomes necessary to devise an operation which will give constant drainage into a space absolutely aseptic. In discussing this matter with Dr. McArthur it was determined to raise a scalp flap, drill the skull and introduce a tube which should have its external opening under the replaced flap. First it was decided that we would fill this tube with a bit of decalcified bone, or

a catgut plug, so that healing of the incision would be followed by absorption of this plug, and drainage might then take place under the scalp, and so relieve the pressure. At the time of the first operation, which was done on a child, I referred to Dr. McArthur about a year ago where hydrocephalus had been present for about two years, and the case was marked by convulsions, some comatose phases and the head was so much enlarged that the child could scarcely maintain it upon the shoulders. He introduced a platinum tube into the intraventricular space, with a shoulder to prevent its slipping into the skull. The flap was replaced and a compress on the outside of the scalp flap directly over the tube opening, maintained for three days, during which time primary union of the incision was secured and thereby septic infection prevented and drainage of the brain controlled. A hygroma was produced in the occipital and parietal region on the removal of this compress and as the child was excited or would cry it would increase, acting like a safety valve and furnishing an opportunity for absorption. The child improved and was able to sit up, and hold its head up, and was so much better that the family refused to have any further interference. At the end of six weeks apparently this tube became blocked, and from that time on no drainage has taken place.

In the second case the same operation was performed on a child about fourteen months old. It is now twelve months since the operation, and to-day the hygroma still exists and still pulsates with the intercranial pressure variations brought about by mental storms or crying. That side of the child's head, however, is diminished as compared with the opposite side, which has practically remained stationery. The supposition is that from an inflammatory process or other cause there is occlusion of the foramen of Monro so that drainage from the other side cannot take place. The general condition of the child, however, is much improved.

This particular procedure is open to the objection that you leave in the brain a metal object which may give rise to irritation and subsequently require operation for its removal, but in these two cases no such irritation has taken place, so far as symptoms indicate. The great object has been accomplished of providing for constant drainage and at the same time guarding against all possibility of infection. In discussing this matter with Dr. Senn recently, he decided to adopt it, but to use a tube of decalcified bone, which he thinks will be absorbed and so prevent the possible necessity for operative procedure at a later date.

In tapping the ventricles the motor area of the cortex should be avoided, else a paralysis may follow as in this case shown here. The parietal route to the posterior horn obviates this very great disadvantage.

Dr. A. B. HALE explained the objects of the Central Relief Association and asked that the support of the profession be given to it.

Dr. OSCAR DODD read a paper, see page 106, on

CONJUGATE DEVIATION OF THE EYES DUE TO MIDDLE EAR
SUPPURATION.

Dr. H. N. MOYER: So far as my knowledge extends, no similar case of conjugate deviation of the eyes in connection with ear disease has been reported. As the doctor has stated, the results of experiment go to show that the conjugate movements of the eyes are connected with the abducens nucleus; pathologically it is associated with lesions in most any portion of the brain. The head and eyes turn toward the side in which the lesion is located, in all paralytic lesions of the brain, except those of the pons. I do not agree with the doctor that pontine lesions are not connected with this symptom, but the direction of the eyes are reversed, in pontine paralytic lesions the eyes turn away from the lesion, to the opposite side. It has been noted, especially by Ferrier that in irritative lesions there is a reverse of the process, instead of the conjugate deviation turning toward the lesion, it turns away. Of course, it is easy to understand how the reverse process takes place, that the spasm would turn the eyes in the opposite direction from a paralytic lesion. So if the lesion is irritative the eyes turn away from, and if paralytic they are turned toward the side in which the lesion is located. If we apply this rule to the doctor's case it does not explain it on the theory of the irritation of the convolutions. Lesions of the convolutions which lie just above the horizontal arm of the fissure of Sylvius, are frequently complicated by this conjugate deviation, but if we have an irritative lesion such as we must have in the extension of an inflammatory process from the ear the eyes ought to turn away, that is the left ear being affected the eyes should turn to the right, yet the doctor tells us that in this case they turned toward the affected ear; so I am inclined to think that the theory he advances is in all probability correct, that is in the nature of a reflex irritation brought about by the connection between the auditory and the sixth, or abducens nerve. The value of this symptom in general practice should not be forgotten. It is frequently to be

found in cases of apoplexy, with partial coma before we are able to determine paralysis or other positive signs. When present a brain lesion is always found.

Dr. S. J. JONES: I have had one marked case of this kind. It was at the Eye and Ear Infirmary some ten years ago. In that case there were the same conditions: suppuration of the middle ear with perforation of the right mastoid process and divergent strabismus of the eye on the same side. It was an acute case, and evidently the cause of the divergence was functional in character for the strabismus lasted about a week, when there was subsidence of the inflammation, and the eye resumed its normal position. There was no impairment of vision; there was an inconvenience resulting from the malposition of the eye, but the divergence was so temporary in character as to preclude any idea of more than functional disturbance. But the characteristics were the same, that of divergence on the same side as the affected ear.

Dr. ARCHIBALD CHURCH: This conjugate deviation may not be altogether disassociated with the irritation of the semicircular canals. I recently saw some reports of experiments that were made in the Polytechnic at Naples upon sturgeons. In some cases the operator irritated, and in other cases destroyed the semicircular canals, and forced movements were produced associated with a convergent turn of the eyes. Whether it was a part of the forced movement or an attempt on the part of the fish to see where he was going was not made clear by the investigator.

In the case of Dr. Dodd, there was some vertigo, which is not dissimilar to symptoms often associated with ear disease, and there may have been some slight association between the irritation of the semicircular canals and this conjugate deviation. The fact that it was persistent and not spasmodic, I think bars out irritative lesion of the cortex.

Dr. OSCAR DODD: In closing the discussion said, I thank the gentlemen for discussing the subject. The question which came up in this case, and the important one for which I was called in, was as to whether operation was advisable, considering the fact that the mastoid was apparently normal. It struck me as being a very peculiar symptom. I could at the time find no explanation of it, and was decidedly at sea as to what was the condition present. There was undoubtedly some implication of the antrum, and I should have operated if there had been any other paralytic symptoms present, but I did not think this alone was of sufficient importance to justify me.

There were ninety-two members and visitors in attendance.
On motion, the society adjourned.

JUNIOUS C. HOAG, Secretary.

THE CHICAGO PATHOLOGICAL SOCIETY.

Regular meeting Tuesday, January 9, 1894.

Minutes of previous meeting read and approved.

Dr. M. L. HARRIS reported a case of strangulated hernia in a child five and a half years of age, presenting specimens and chart.

Dr. I. N. DANFORTH reported a case of

NEPHRECTOMY FOR CYSTIC KIDNEY,

the other kidney being also cystic and presented specimens.

This case was a lady, single, aged about thirty-five. I was called to see her in consultation on the 18th of November. The history I got was that in early life she had suffered luxation of the head of the femur, which was never reduced; other than that she had been pretty well, although never very strong. She was always quite active in various callings pertaining to work among the poor; she was a "missionary deaconess." About four weeks prior to my calling she was operated upon for a caruncle of the urethra; she made a rather bad recovery, and about three weeks after the operation she was seized with a severe rigor, and the temperature rapidly went up to 104°. The rigors followed by high temperature and profuse perspiration kept up for several days. She was then under the care of Dr. Eliza Root, who discovered a tumor in the left renal region and called me to see the case.

On examination I found a well-marked tumor in the left renal region, movable, semifluctuating and nodulated. It was at least four times larger than the normal kidney and seemed to be of an irregular reniform shape. In the right renal region no tumor was found. There was a marked dullness on percussion, a sort of doughy feeling, which would lead one to believe that the right kidney was also enlarged. It was Dr. Root's opinion and mine that the tumor in the left side was the kidney. At that time the urine was heavily loaded with pus, and showed under the microscope some very large casts. The urine contained albumen and a large amount of broken down or disintegrating epithelial cells. There had been a diagnosis ten years before of fluctuating kidney, and this taken with the results of the prior operation, and the pres-

ence of a fluctuating tumor, led me to think that it was an old floating kidney which had probably become infected from some accident attending the operation upon the urethra, and that there was an acute suppurative process there, especially as I could detect a distinctly fluctuating mass. Acting upon that supposition, I aspirated the tumor but got no pus at all, but a little albuminous fluid which contained a large amount of cholesterin, and a large number of those Drysdale's corpuscles, which we used to regard as diagnostic of ovarian tumors. Examination per vaginum showed that the ovary was neither enlarged nor diseased, so we had to fall back upon the kidney. Believing the case to be one of floating kidney in which suppurative infection had occurred, I suggested as probably the only remedy, nephrectomy, and advised at least an exploratory operation, and if there was any considerable amount of the kidney substance remaining, irrigation and drainage. But the patient failed rapidly, seemingly from septic infection; had a daily chill and sweats; unusually dry tongue and a very rapid pulse. She seemed sinking right out of our grasp, so that one day I did not think she would live until the next; but very unexpectedly and suddenly she began to improve. She rapidly regained strength and got so she sat up for a day or two. Then there came on another of these attacks of hectic, only she did not get so low. This fluctuating part of the tumor, which I had aspirated, began to fill up again, and we concluded the best thing to do would be to operate.

Accordingly two weeks ago last Friday I operated upon the case making a lumbar incision and removing this kidney, which you will see is a very perfect specimen of cystic degeneration. The patient rallied very well from the operation. I want to say before I forget it that it was not very difficult to remove this enormous kidney through the lumbar incision. It has been stated that it is almost impossible to remove a large kidney through the lumbar incision, but I am now prepared to say that I know better. On Saturday, the first day after the operation, the patient passed three ounces of urine highly albuminous, but not bloody; on Sunday she passed two ounces; on Monday about an ounce, and on Tuesday none, and on Wednesday none. She lived one week after the operation, then died comatose, with all the indications of slowly developing uremia. There were no convulsions; she simply became dull and this dullness increased until perfect coma supervened. The only post-mortem we were allowed to make was to examine the abdomen and take out the other kidney, which I show you. It is

not nearly as large as the left one and not as far advanced in cystic degeneration.

The question arises, of course, why these kidneys became cystic? I could obtain no satisfactory cause in this case. There had been no previous illness, nor any tubercular disease in the family, nor injury to the kidney which I could trace as a starting point. As to the nature of these cysts, Newman of Glasgow, who has written a very excellent work on surgery of the kidney, believes that they are developed from the capsules of Bowman and convoluted tubes. Dickinson, who is perhaps better authority, states that the capsules of Bowman are not involved; that they have nothing to do with it, and they can be frequently seen lying almost normally in the midst of the cyst. He states also that sometimes in these cysts coils of convoluted tubes, which are not changed very much, may be seen. His opinion is that they are developed from occluded convoluted tubes. That the process acts as in a cirrhotic kidney, but that it proceeds more rapidly than ordinary cirrosis, so that the tubes become strangulated and they develop into these cysts; and in proof of that they are usually lined by epithelium resembling distorted and enlarged renal cells. From an examination of these specimens, I am inclined to adopt Dickinson's explanation, as the most satisfactory yet proposed.

Dr. D. D. BISHOP presented specimens of enormous

CYSTIC KIDNEYS.

with the heart and spleen. See page 116.

The patient from whom this specimen was taken was a man, white; age fifty-four; an English soldier. He was admitted to the County Hospital on the 25th of November. He had been a patient in the hospital last summer. He claims that in 1888 he was sick with heart disease, and that when he came to the hospital last summer he was again treated for heart disease with some slight renal complication; how extensive the renal disease was considered at that time I am not able to say. When he was admitted to the hospital in November he was found to be well nourished; his feet and ankles edematous; general appearance was good. On physical examination it was found that the area of cardiac dullness was considerably enlarged, the apex being felt best in the antero-axillary line three inches below the nipple. A cardiac thrill was present. There was a systolic blowing murmur at the apex; lungs and liver were negative. Upon examination of the abdomen there was found in the left renal region a plainly pal-

pable tumor, which could be felt anteriorly and was deep seated. Upon the right side nothing was demonstrated. Albuminuria was present and a few days before death some pus corpuscles, but at no time was there any large quantity of pus or any casts, nor was there any blood in the urine. The symptoms of renal disease, that is, the edema and albuminuria, remained about the same during his stay in the hospital, neither increasing nor decreasing; there were no temperature changes. The patient complained of constipation at times and suffered considerably from dyspnea. He gradually became weaker and died on the 27th of December. At the post-mortem there was found these two kidneys with cystic degeneration. They are very large, weighing together 2,400 grammes, probably an increase of ten times the normal weight. They seem to be made up completely of cysts, and upon ordinary examination scarcely any kidney structure is recognizable. The ureters were not enlarged and the bladder mucous membrane was normal, as was the mucous membrane of the urethra. The heart, as you will see, is very much hypertrophied. No lesions were found the valves to account for the murmur, but the mitral orifice was considerably enlarged, admitting four or five fingers readily, and the tricuspid orifice would admit six or eight fingers. This heart weighs 670 grammes. The spleen from this patient shows quite a pretty anemic infarct.

Dr. M. L. HARRIS: Both of these specimens belong to the same class of kidney disease, which has been termed polycystic kidney. Kidney cysts are divided into four classes: Simple cysts, hydatid cysts, polycystic kidney, and paranephritic cysts. Polycystic kidneys are found most frequently at two periods of life; they are congenital often, possibly always, and have been found most frequently in early life; and with the next frequency between the fortieth and fiftieth year. They have been found in intrauterine life and their exact pathology is, as yet, not known.

In regard to operating upon a polycystic kidney, the history of these cases is almost universally fatal, so much so, that Tuffier, the great French authority, says, if you cut down upon a kidney and find that it is polycystic, the opposite one being always diseased, it is better to close up the wound and not attempt its removal.

Dr. G. W. EMERY: I would ask Dr. Danforth whether during the month this lady was under observation the quantity of urine secreted daily was observed; and if there were any indications from the secretions that this tumor existed? And should it have been

detected by physicians previous to this by careful observation of the quantity of urine discharged daily?

Dr. I. N. DANFORTH: The urine passed by the patient was observed for some days previous to the time I was called and afterward. The quantity of urine ran from twenty to forty ounces, varying all along there; those I remember are the extremes. The specific gravity varied from 1010 to 1030. There was pus in the urine all the time, but it decreased a good deal after this acute attack of apparent septic poisoning.

As to the propriety of operating, I did not know that this was a cystic kidney until I got it out of the patient's body preparatory to ligating the pedicle, and I do not know that I could tell certainly in another case that it was. I should do the same thing again, unless I could make a certain diagnosis beforehand. These cases are extremely rare. I have been working along the line of the kidney for some years past and it is the first one I ever saw. I commenced operating on that kidney believing that it was a case of septic infection; of course, when I aspirated the cavity and got instead of pus, cholesterin, that raised the question of a cystic kidney; but it did not seem to me that it was large enough or that its form as indicated by palpation was that which a cystic kidney would take, and I believed it to be either a pyonephrosis, as we sometimes find those cavities containing cholesterin, or else a tumor of the kidney, probably a sarcoma which had undergone fatty degeneration, and in which cholesterin cavities are not uncommon.

Dr. D. D. BISHOP: Considering the etiology and pathology of these cysts we might at least ask the question, whether or not these cystic kidneys found in fetal life and which are often the cause of the death of the child soon after birth, could not exist and the patient live for a number of years? We have had exhibited to-night cystic kidneys that the patients may have had all their lives. In the case I recorded the patient evidently had some kidney disease for a long time. He had hypertrophy of the heart, there was present cyanotic induration of the liver, and general passive congestion of other organs that would warrant us in supposing there had been an interference with the circulation for a long time, and probably this interference was in the kidneys. Now if the renal tissue is not entire destroyed, as the pathologists claim, could not these kidneys carry on the renal function for a good many years and at last the patient die from kidney disease? Bland Sutton says, that after a good many investigations of the pathology of the fetal cystic kidney it is his conclusion that they are developed by

a malformation and mixture, as it were, of the Wolffian body and the early kidney structure.

Dr. L. C. WEEKS, presented a

SPECIMEN OF OVARIAN FIBROID.

The patient from whom this specimen was taken, was a large, well developed, well nourished woman, age forty-eight years, married at twenty-four years, bore three children and passed the menopause without accident at forty-three. Admitted to Presbyterian Hospital, November 10, '93. Six months before she had noticed a hard lump in the right side of the abdomen and had had a number of attacks of very acute pain in the same region.

Palpation revealed the presence of free fluid in the peritoneal cavity and a hard smooth lump in the right iliac fossa quite freely movable, not closely connected with the uterus. Dr. Etheridge performed laparotomy November 11. About three quarts of straw colored fluid was evacuated and the hard mass was found to be a tumor of the right ovary connected to the right broad ligament by two small pedicles, one evidently the original attachment of the ovary somewhat lengthened, and the other a slight adhesion. At the lower left corner was a nodule about the size and shape of the ovary, but microscopical examination reveals only one histological element, fibrous tissue. At the upper left corner was a cyst the size of a hen's egg.

Microscopical examination of the tumor revealed the structure to be almost pure fibroma with the admixture of a few smooth muscle fibers.

According to Greig Smith three per cent of all neoplasms of the ovary are solid tumors, the principal ones being the sarcomata, carcinomata and fibromata.

According to Pozzi the development of a fibroid of the ovary is not that of a circumscribed growth, but is either a fibroid degeneration of the ovarian structure with uniform hypertrophy of the organ, the tumor being nearly the same shape as the original ovary, or a growth from the corpus luteum, the ovary remaining an appendage of the tumor, and cut section of the tumor showing the dentate appearance of the corpus luteum.

Pure fibromata of the ovary are a clinical curiosity. They seldom reach a large size, this one weighing three and a half pounds and one of five pounds is recorded. A fibroma of the ovarian ligament weighing seventeen pounds is recorded by Doran. They are nearly always smooth, with no adhesions on account of ascites they

produce, generally pedunculated though sometimes growing between the layers of the broad ligament.

Dr. B. M. LINNELL presented

SPECIMENS OF TUBERCULOUS KIDNEY.

These kidneys were taken post-mortem from James Ryan, a horse trainer aged thirty, single; admitted to the Presbyterian Hospital, December 8, 1893. Family history unknown; personal history uncertain, although he admitted having had gonorrhea several times. He said he had malaria five years ago in Tennessee. When the patient was admitted to the hospital he was in a stupid condition and could be aroused with difficulty; he did not seem to comprehend freely what was asked. He said he had had chills and fever every fall for five years but since his first attack had not stopped work; chills came on every day or every other day. He claims that three weeks previous to his entering the hospital having had his usual "fall attack," he was taken with chills and fever which sent him to bed. He was found by some horsemen sick and uncared for, but they could tell us nothing. On examination the patient was found in a condition of prostration; heart feeble but otherwise negative. There was tenderness across the abdomen, especially in the right lumbar region and he complained of pain in this region. There was splenic dullness, liver dullness slightly increased, extremities negative; his tongue was dry, of a dark brown color, heavily coated, and his throat was very sore. He swallowed with difficulty and complained of great pain; there was vomiting and restlessness. On admission the pulse was 88, temperature 97, respiration 20. We made a diagnosis at the time of uremia probably following malaria and treated him accordingly. The patient became more stupid and at times delirious although he had rational periods up to the end. The pulse ranged from 88 to 100, the temperature in the axilla from 96° to 94°, his respiration was never above 24. His bowels moved slightly once during the two days he was in the hospital; we were unable to obtain a drop of urine even by the use of the catheter. The patient died two days after admission. At the autopsy the heart was found negative, spleen enlarged to about twice the normal size, soft and dark red; liver slightly enlarged. In both apices of the lungs there were hard tubercular nodules; apices adherent to the pleura; also lower lobe left lung, caseous masses were scattered throughout both apices and lower lobe of left lung.

The kidneys were enlarged to six inches in length, three inches

in thickness and four inches in width. They are soft, and on opening found to be filled with multiple abscesses. At one place is a large cyst containing caseous material, about the size of a hickory nut, the walls of which are roughened and thickened. Others are scattered throughout the kidneys. All normal structure is completely destroyed. The abscesses reach almost to the capsule.

Here is one of the kidneys with the ureter attached which was dissected down almost to the bladder. The ureter is hard and nodular, its walls are thickened so that the diameter is about three-eighths of an inch. It contains pus. Signs of a stricture below the limit of dissection are apparent. The bladder was entirely empty and contracted; the wall showed slight inflammatory changes. It appears to me that this is a case of tubercular kidneys, and if we had gotten a correct history the diagnosis might have been made. The lungs were undoubtedly the primary source of infection, which passing through the blood became located in the kidneys. Of course the venereal history which preceded this and the uncertainty which surrounded it, might lean towards a diagnosis of pyelitis, but the condition of the kidney, the caseous deposits, and the lungs, the tubercular nodules and the evidence of a long standing inflammatory process in the patient is against that theory.

Dr. I. N. DANFORTH: A man thirty-five or forty years old consulted me with pus in the urine. He complained of almost constant pain in the right kidney. I could detect some enlargement of the kidney and a hardened indurated area running from the kidney to the bladder deep down in the pelvis. He had tuberculosis of the right lung and I suspected tuberculosis of the kidney as well; but although there was an abundance of pus in the urine all the time, I could detect no bacilli. He remained under my care more than a year, and then died. At the autopsy I found the right kidney very much enlarged and evidently tubercular. The pelvis was dilated and occupied by a putty like material. The ureter was enormously enlarged, thickened and funnel shaped, the large end of the funnel being at the upper extremity. It was very tortuous and the cavity grew smaller and smaller until just before it entered the bladder, the lumen seem to be entirely gone; I could not find my way through it with a small probe. Just where the ureter entered the bladder, there was a mountainous deposit, which was the thickened walls of the bladder also infested by tubercular deposit. The left kidney was good deal enlarged, but was otherwise normal.

Dr. J. M. DODSON, reported

A CASE OF PNEUMONIA, ILLUSTRATING THE USE OF ICE.

I have recently treated a few cases of pneumonia with external applications of ice. The reports of cases by Mays, of Philadelphia and others, have impressed me with the very great value of this method of treatment in pneumonia, which it seems to me ought to come into more general use. I believe it is far more satisfactory and more efficient than hot applications, for several reasons.

The case which I propose to use for my text is one to which I was called on the third of December. Miss G. A., young lady of twenty-two, a stenographer by occupation, had been in poor health for some two or three months, there having been a suppression of menstruation and some other indications of a lowered vitality. She had been rooming for some weeks in a new flat, which I had noticed at a previous visit to another patient, was damp and insufficiently warmed. When I was called, December 3, I found a temperature of about 103° , respirations thirty, pulse over 100 with the physical signs of pneumonia. There was history of distinct chill on the preceding evening followed by pain in the chest and fever; there was consolidation at that time over the lower lobe of the right lung, extending to about the upper border of the fifth rib, and it soon involved the whole of the lower lobe. Ice was ordered with an expectorant mixture containing carbonate of ammonia and digitalis. The next day she was removed to the Presbyterian Hospital. On reaching the hospital the ice applications were removed owing to a misunderstanding regarding the directions, and the fact that a suitable bag was not to be had at the time, and there followed slight rise in temperature and return of pain in the side, which had been greatly relieved by the application of ice. They were renewed the next day. Crisis occurred on the seventh day. The temperature had, however, previous to that time not been above 102.5 , after the ice was renewed, and it now fell to the normal point. Respirations remained about twenty-four for four days longer, but soon fell to twenty-two and then to twenty and the pulse also gradually returned to the normal rate. The patient was in the hospital about three weeks; she returned to her home on the 22d of December and I learn is recovering her strength rapidly.

The case itself is not of special interest; it does not differ from the usual cases of pneumonia, but it illustrates the value of ice, and the relief especially which it gives to certain symptoms.

Some striking cases have been reported recently, and series of cases illustrating the effect of the application of ice, upon the mortality in pneumonia. In fifty cases reported by Mays collected from various sources, including thirteen reported by Lee, of London, which are combined in his report with 106 cases by Fieandt, a Finnish physician, there are only five deaths, a mortality of a trifle over three per cent. Making all due allowance for possible errors, and possible enthusiasm on the part of the reporters, the difference between a mortality of three per cent in lobar pneumonia, and the usual mortality of twenty per cent is enough to arrest our attention. In 1,120 cases reported by Osler as occurring in the Montreal general hospital the mortality was over twenty per cent. In about a thousand cases in the Charity Hospital, at New Orleans, the mortality was 20.01 per cent. This is about the average mortality.

What is the rationale of the effect of cold in the treatment of pneumonia? I presume that nearly all physicians are agreed at present that pneumonia is a microbic disease; not, of course always dependent upon the Friedländer pneumococcus, because it may be produced by almost any microörganism which may produce an inflammatory process in other portions of the body. Pneumonia is produced by the typhoid bacillus, by the diphtheria bacillus, and the various forms of pyogenic germs. Being a germ process it is reasonable to suppose that if the cold can be made to reach the infected part, so as to actually depress the temperature it may retard the development and growth of the microörganisms. Probably, however, it is more efficient through its effect upon the circulatory process. Cold stimulates vasomotor constriction, and as it restores the tone of the arterioles and capillaries, always enormously distended in pneumonia, it renders the circulation more active and lessens the stagnation of blood. For the same reason it diminishes the amount and hastens the absorption of the exudate. One of the most noticeable features of the use of ice in pneumonia is the effect upon pain. In my patient the cold was at first objected to, as is usually the case when cold is applied for any purpose. It had been on but a short time when she began to appreciate the distinct relief it afforded. And when it was removed at the hospital she suggested to me, at my first visit, that she preferred the cold applications and would like to have them reapplied, and the pain was very much diminished by their use. It is reasonable to suppose, I think, that the cold obtunds the sensibility of the afferent nerves in this area, and in that way lessens the pain

and, of course, indirectly lessens it too, as it diminishes the inflammatory process. Another advantage in the use of cold is the fact that the applications can be kept at a relatively constant temperature; if the ice bag is applied, as long as there is any considerable quantity of ice in the bag the temperature of the whole mass is about the freezing point, or about thirty-two degrees F. All have experienced the great difficulty of maintaining hot applications at any sort of constant temperature; in fact the difficulty is so great that the use of poultices, which to my mind are in many cases exceedingly efficient, has been quite generally abandoned for the usual cotton and oil silk jackets, which maintain the retained perspiration at the temperature of the body, but not at a sufficiently high temperature to be of great efficiency.

I believe that cold is destined to be very much used in the treatment of pneumonia, as it is coming to be used in other diseases. Incidentally it may be mentioned, that cold applied in this way lessens the general temperature and a distinct fall is always to be noticed. Indeed it has been noted by several observers that this fall is greater in pneumonia after the application of ice to the chest than from the use of the cold bath or pack. Patients suffering from pneumonia in which the cold bath or pack has been tried, have been more relieved as far as temperature symptoms are concerned by the use of the ice bag than by any other measures. I therefore suggest a more general use of the ice bag in the early stages and throughout the course of lobar pneumonia, as a substitute for the ordinary jackets or poultices.

Dr. J. J. ANGEAR: When a young man we applied cold to inflammatory conditions, then the idea was hot applications, and now some would have us go back to the cold. I cannot see the philosophy of applying ice locally, thinking thereby we are lowering the general temperature. Experiments show that it lowers the temperature on the surface but causes a rise of internal temperature. We have from 500 to 800 times as much blood in the capillaries as in the arteries, and when there is a local application of cold to the surface, through the shock to the nervous system it brings on a local contraction of the capillaries and drives the blood from the surface to the inner part, and for this reason it does seem to me that the application of ice in inflammation of the lung is not rational treatment. Putting the patient in a pack or bathing him in ice water causes reaction; the parts become red, showing that

the capillaries are dilated and that the blood is drawn to the surface and we have something of the nature of counterirritation.

Dr. G. H. CLEVELAND: Various plans of treatment have had their day. We recollect that within the last four or five years digitalis was heralded as the only thing to use in the treatment of pneumonia. Statistics in regard to pneumonia are apt to be very misleading; we cannot depend upon them. Dr. Dodson raises some points to which I take exception, based entirely upon experience. For instance, he finds that the application of ice relieves pain, so it does, and so does heat. I have had that illustrated recently in a case of double pneumonia. I surrounded the patient with hot bags and kept them hot all the time, and my patient has made an excellent recovery; there seems to be perfect resolution and scarcely any expectoration. In this case the pain was very decidedly relieved by the application of heat. It seems to me that the application of heat is more rational in pneumonia than the application of cold; not entirely because of the effect of either heat or cold directly upon the inflammatory process, but because of the indirect influence upon the general bodily condition and upon the secretion.

Dr. A. E. HOADLEY: Some twelve years ago this same conflict was raging, and so to be between the extremes I decided to use no applications, and from that day to this, other than putting on a few hot applications for perhaps an hour or so during the first onset of acute pain in pneumonia, I have not used either poultices, cotton and oil silk jackets, plasters, cold or any other form of application or counterirritation. I have simply placed the patients in bed and kept them just as comfortable as I could, without burdening them with any needless means of treatment. I have of course not been encouraged in this plan by anybody, consequently I have watched my patients with more than usual interest; and the longer I practice this method of treating pneumonia the better I like it. With regard to application and the administration of remedies it is the best of all diseases to let alone, and I think of all the medical conditions I have treated pneumonia is the one to which I give the least medicine. I have not had any occasion to regret the non-use of poultices or hot applications; and notwithstanding the very able manner in which the ice theory has been presented to-night I do not think I will give it another thought. I am certain I shall not apply it to any patient with pneumonia that comes under my care.

Dr. J. M. PATTON: This question of the effect of cold in

pneumonia was first antagonized by the regular profession largely on account of the supposed etiological effect of cold in pneumonia. Lipari, of Palermo, demonstrated some time ago, that by the application of cold to animals their susceptibility to croupous pneumonia was largely increased. Animals that would resist endo-tracheal injections of pneumonic sputa or pleuritic exudation, were rendered more susceptible to the influence of such injections after subjection to cold. This, he inferred was due to the paralyzing effect of cold on the ciliated epithelium of the tubes and the swelling of the mucous membrane which occurred as a consequence, both conditions favoring descent of infectious material into the alveoli. That is true as far as the local effect of cold to the tissues of the bronchi and the lung is concerned, but regarding its application to the surface of the body, it is an entirely different matter. Niemeyer advocated the use of cold in pneumonia twenty years ago, but said that in some cases it was not desirable. Cold was very largely advocated by Lees and Goodhart in 1890. Sydney Coupland in the British Medical Association in 1892 advocated cold applications.

Boardman Reed also says cold in the form of wet packs or baths after the Brand method is the most useful single therapeutic measure that can be used in croupous pneumonia. We cannot disregard such testimony and the question presents as to what it means.

I have used cold and I have used heat and I think that both are valuable. I do not believe that the application of heat or cold to the external surface of the body has a particle of effect in checking the progress of the pathological lesion in the pneumonic lung, it will take just as long for it to run its course. It will go through the same phases and in the same way. You certainly can, by the use of cold applications to the surface, lower the temperature of pneumonia, more than that you stimulate the nervous system as you do in typhoid cases and you enable the vasomotor system to obtain its lost grip on the vessels.

The application of heat is certainly beneficial in many cases to relieve pain, and is safer in children and old people, and in catarrhal pneumonia.

I thoroughly believe with Dr. Hoadley that the less you do for pneumonic patients the better they are off. The doctor who can tell when to let these patients alone is a great deal better practitioner than the man who always knows what to give them. I do not believe in the jugulation of the pneumonic process by digitalis or anything else; and if there is no special indication for medicine

I do not think it should be given, and in certain cases I do not believe heat or cold should be applied externally.

Dr. J. M. DODSON, in closing the discussion, said: I have only a word or two to add; in regard to driving the blood internally, to use that expression, it is certainly not rational to suppose that the application of cold locally to the chest area, should have any direct effect upon the amount of blood in the lungs any more than it does upon the character of the circulation in other parts of the body, for there is no direct connection between the two vascular areas.

It is true that statistics are vicious sometimes; they are uncertain things to handle, and yet, after all they are our final appeal; and the only way in which the value of any therapeutic measure can be ascertained is by compilation of a carefully prepared large series of statistics. The observations of any one man are rarely of great value in the estimation of a matter of this kind, and therefore when we come to the final estimation of the value of a particular measure, statistics are the things to which we must resort, and a series of 156 cases with only five deaths ought to arrest attention.

The name of James Leslie McCallum, 526 W. Indiana St., proposed at the November meeting, was reported upon favorably by the Censors and he was elected to membership.

The name of Dr. Geo. Harris Somers, 505 W. Adams Street was proposed for membership. Referred to the Board of Censors.

Dr. I. N. DANFORTH moved that the committee of three be appointed to draft resolutions expressing the feeling of the society in regard to the urgent demand for the elevation of the railroad tracks.

Motion carried and Drs. I. N. Danforth, G. H. Cleveland and D. W. Graham were appointed as such committee.

Dr. DODSON moved that the Executive Committee be instructed to procure 150 copies of the reprints of the proceedings of the Memorial Meeting in memory of Dr. Earle. Carried.

On motion, the society adjourned.

JOHN M. DODSON, Secretary.

THE COOK COUNTY HOSPITAL CLINICAL SOCIETY.

Regular meeting January 4th, 1894.

Dr. PIERCE, chief of internes in the chair.

Minutes of previous meeting read and approved.

Dr. CLAUSEN exhibited a number of dermatological cases :

2 cases of favus, 2 cases of scabies, 1 case of varicella, 1 case of psoriasis of body and scalp.

Dr. MCGREW said, concerning these cases.

As regards the case of varicella he considered the diagnosis doubtful, inasmuch as there was a history of syphilis and the lesions were not typical.

The Achorion schönleinii was found in each case of favus.

Dr. BISHOP said that from the present appearance of the lesions in the case of varicella it would not, in his judgment, be possible to diagnosticate the case from syphilis, except from the history.

The proportion of favus cases in the hospital is unusually large, considering the relatively small number of dermatological cases treated. He considered it interesting to examine these cases microscopically also to note the peculiar character of the alopecia. There are tufts of hair still healthy on the older patient, others slowly being invaded by the parasite. The alopecia is really a multiple scarring, an atrophic condition of the scalp. Treatment is unsatisfactory—prognosis should be cautious. Parasitocides do not penetrate the skin sufficiently. Among those commonly in use he would name chrysarobin, either alone or in combination with turpentine, also sulphurous acid, etc. The only treatment presenting any prospect of success must include thorough daily epilation.

Speaking of the case of psoriasis, here alopecia was present, which is rare in psoriasis. That present was quite likely due to some other lesion.

Dr. MCGREW asked how far the achorion penetrates beyond the margin of the crusted patches.

Dr. BISHOP replied that the only test was in the looseness of the individual hairs. It was possible for the crusts to so pile up as to overlie areas larger than those which were really affected.

Dr. MCGREW asked why early surgical extirpation would not be advisable.

Dr. BISHOP was not prepared to say that it was not advisable, but he had no knowledge of any such procedure.

Dr. PIERCE then exhibited a case of tuberculosis of the upper portion of the humerus and shoulder joint. An excision of the entire head of the humerus was performed, and the capsular ligament removed. The scapula seemed unaffected. A most excellent functional result was obtained without shortening. Patient has perfect use of forearm, and excellent control of arm. Attention was called to the incision, made on the outer side of the arm, in front of the deltoid muscle. He considered it superior to the usual incision through the deltoid.

Dr. BISHOP then reported five cases of hemiplegia with motor aphasia. See page 116.

Additional cases were briefly reported by Drs. Sippy, Tinen and Oleson.

Dr. SKINNER reported six cases of gunshot wound of thorax. Three recovered—three died. Of the deaths one resulted from shock, one from penetration of the liver—laparotomy—death from shock; one from a resultant empyema.

Dr. KORTEBEIN said that though a certain amount of aseptic blood in the pleural cavity was considered harmless, he generally found that patients did better after its removal, even where there were no indications for such a procedure, either from temperature or dyspnea.

He reported an additional case—gunshot of lung, wound of entrance cleansed aseptically and sealed with collodion; no bad symptoms for twenty-four hours, then sudden rise of temperature to 105°-106°. Six hours later a scarlatinal rash appeared, with death eighteen hours afterward. Post-mortem diagnosis was septic lobular pneumonia. Dr. Bishop then exhibited two large cystic kidneys.

Adjourned.

R. B. OLESON,	} Secretaries.
T. P. FINDLEY.	

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting held at 103 Adams St., Nov. 14, 1893.

Dr. HOLMES in the chair.

Present Drs. Colburn, Gradle, Holmes, Westcott, Wilder, Williams, and Pinckard.

A patient of Dr. Wood's was shown, having a large tumor within the eye. This was supposed to be a cysticercus by Dr. Wood, but owing to his absence, discussion of the case was postponed.

Dr. COLBURN said that his case, reported April 11, 1893, returned about two months later with another severely painful attack. The eye was enucleated, and on section the choroid was found infiltrated with fibrinous deposits, and the vitreous was fluid. The other eye was irritable at time of operation.

Dr. HOLMES spoke of two recent cases of choroidal tumors which both occurred in cataractous eyes, in which it was impossible to make an absolute diagnosis of tumor. Both eyes were tense, pupils dilated, and lenses opaque. On removal, one eye presented the ordinary melano-sarcoma of the choroid, the tumor projecting into the vitreous. The other contained a melano-sarcoma which was very diffuse, but did not project more than A. mm. above the rest of the fundus.

Dr. WILLIAMS explained the method of examining the employees of the Chicago, Burlington & Quincy Railroad. Each examiner is furnished with a bag containing 114 shades of wool, besides the test skeins. This is a much larger number than is contained on the Thompson stick, and the test is believed to be more accurate.

The society adjourned by limitation.

Regular Meeting held in Schiller Building, Dec. 12, 1893.

Dr. HOLMES in chair.

Present Drs. Montgomery, Fisher, Hotz, Beard, Oaks, Bixby, Gradle, Holmes, Faith, Hollister, Stannard, Tilley, Brown, Wilder, Mann and Pinckard.

Drs. B. M. Behrens, Oscar Dodd and P. J. Pontius were elected members. The applications of Drs. H. W. Woodruff and H. S. Walker were referred to Committee on Membership.

Minutes of last meeting were read and adopted.

Dr. BEARD showed a patient whose left auricle is much deformed, congenitally dislocated downward and forward about two inches. There is no hearing on left side and on right it is diminished owing to chronic catarrh of middle ear. There is a tumor about the size of a hazel nut at the outer canthus of each eye, these tumors arising from the conjunctiva and being sparsely covered with hair. One was removed three weeks ago and on microscopic examination proved to be a dermoid cyst. The palate is much deformed, there being two rows of teeth on left side. The mastoid processes are symmetrical. Dr. Gradle thought the condition of the auricle and jaw was probably due to intrauterine injury.

Dr. GRADLE spoke of acquired chronic syphilitic retinitis. Some books deny that there is much evidence of syphilis in the retina. Hirschberg reported that three tenths per cent of all cases he had seen were syphilitic retinitis. Dr. Gradle has seen three cases, all women over forty. Symptoms are a flickering of light, and phosphenes, gradual loss of sight over entire field, and central scotoma for colors. The changes in the retina were very slight, the loss of sight being much greater than one would suppose from the appearance of the fundus. There were slight changes in the choiroid in all cases. The vitreous was slightly opaque. Hirschberg found deposits on the posterior surface of the cornea, but Gradle did not see them. Since the visible ophthalmoscopic changes are not sufficient to account for the reduction of sight and since in all his cases there was a demonstrable central scotoma for colors similar in shape to that found in retrobulbar neuritis the author believes that the inflammation extends to the axial fibers of the optic nerve behind the eyeball. The cases are subject to very decided fluctuations. They are very amenable to antisyphilitic treatment. No atrophy followed in his cases as long as I saw them.

Dr. HORTZ showed a modification of his astigmometer. He stated that of the last 200 eyes tested with it, it failed to demonstrate astigmatism in only fifteen. Of these, seven were in eyes whose V was less than $\frac{2}{3}$ °. The other eight had only 0.25 of astigmatism. Dr. Wilder has used the instrument with satisfactory results.

Dr. BETTMAN reported a case of otitis media purulenta first seen four months ago. Under treatment the discharge ceased but reappeared one month ago. He saw the patient five days ago. The drumhead was intact but there was much pain and swelling

lack of ear. He cut down on antrum but found no pus. Pus was finally found under sterno-mastoid muscle. The pus was sweet. Dr. B. considered it a case of periostitis.

Dr. TILLEY spoke of a similar case which healed after opening. Dr. Gradle had a case where a fistula opened near the hyoid and fluid could be forced into the ear from this point.

Society adjourned by limitation.

C. P. PINCKARD, Secretary.

Reviews.

A TEXT-BOOK OF OPHTHALMOLOGY. BY WM. F. NORRIS, A. M., M. D., and CHAS. A. OLIVER, A. M., M. D. 641 pages. Illustrated with five colored plates and three hundred and fifty-seven woodcuts. Philadelphia: Lea Brothers & Co. 1893.

Of the making of text-books on diseases of the eye there appears in late years to be no end, and he would have been considered a rash critic who said some short time ago, that much more information than is contained in the works of Berry, DeSchweinitz and others, could be profitably condensed within the 500 or 600 pages which seems to limit the size of English ophthalmic manuals.

But it is nevertheless true, that the combined work of Norris and Oliver has given us a very much larger number of useful and practical hints, couched, too, in language pleasant to read, than is to be found in the majority of similar text-books. This is evident upon the merest glance through the work. A closer inspection shows that very much of it, so far as the average reader is concerned, is entirely new, still more of it, rarer virtue, is original, while happiest of all, a goodly portion of the original matter can be read with much benefit by the student of ophthalmology.

The black and white representative of the fundus are failures, as most such pictures are, but it is perhaps better to insert them, under the name of diagrams, than not to show them at all. The same thing can be said of the other illustrations, colored ones included, when they are not diagrams and aspire to be pictures. The exceptions to this criticism are the copies of such incomparable masters as Jaeger, with whom appears to have died the art of depicting diseased eyes as they really are.

Coming to critical details the pages on the examination of the

ocular muscular equilibrium are exceptionally clear and to the point. Savage's method of detecting anomalies of the oblique muscles is described, while the truth of the whole matter is well summed up as follows: "Briefly, then, no one test can be depended upon. Each case requires special combinations of procedures which are to be discontinued only when the results seem to be certain and unvarying. The chapters on optics and physiological optics, indeed the whole of the introductory matter included in the first 160 odd pages, are ideally written. Chapters IV. and V. are not burdened with that pedantic display of mathematical formulas occupying space better devoted to other matters which are chiefly valuable in showing how much the author knows, and how much the student has forgotten, and yet the subjects which head them, optics and physiological optics, are by no means neglected.

Finally, there is but one other text-book, and its first edition was written many years ago and not by an American, which, in the opinion of the writer, is better deserving of a place in the library of the general practitioner, and of the student of ophthalmology, than this one of Norris and Oliver.

A MANUAL OF PRACTICAL HYGIENE. Designed for Sanitary and Health Officers, Practitioners and Students of Medicine. By W. M. L. COPLIN, M. D., adjunct Professor of Hygiene, Demonstrator of Pathology and Curator of the Museum, Jefferson Medical College, etc., and D. BEVAN, M. D., Instructor in Hygiene and Clinical Microscopy, Jefferson Medical College, etc., with an introduction by H. A. Hare, M. D. Cloth, 456 pages, with 140 illustrations. \$4.00. Philadelphia, P. Blakiston, Son & Co., 1893.

With the advances made in the last few years in sanitary science, it is strange that so few practical books upon hygiene have appeared. The work under consideration is the first complete text-book prepared by Americans for use in America. The microbic causes of disease are first considered, the subjects of water, air, food, dwellings, thoroughly discussed, each in its relation to disease prevention and disease production. The main idea is, as the authors state to go thoroughly into "the causes of disease, their methods of ingress and the available means for their prevention." The book is true to its title throughout; it contains little theory and much practice. The climatology of the United States has been carefully studied and the results condensed so that the reader may ascertain at a glance the climate, average temperature, precipitation and relative humidity of any desired locality. Hereto-

fore the climatological charts have as a rule been prepared in advocacy of some particular district or locality and consequently have not been above suspicion. The book is clearly and concisely written, and well illustrated, and will be a useful addition to the library of not only medical men but also of sanitary officers, architects and builders.

THE TECHNIQUE OF POST-MORTEM EXAMINATIONS. By LUDVIG HEKTEON, M. D., Pathologist to Cook County Hospital and Professor of Pathological Anatomy, College of Physicians and Surgeons, Chicago, 41 illustrations. Octavo, 172 pages. Cloth, \$2. W. T. Keener Co., Chicago, 1894.

The necessity for a clearly written work on this subject has long been felt by the profession, especially those who have to do with coroner's cases, or even those who are medical witnesses. In addition, it will be of the greatest value to every practitioner who is called upon to make post-mortems under any and all circumstances. The little manual of Virchow which was practically the only thing available heretofore, left much to be desired in view of the necessities that often beset the American practitioner. Dr. Hekteon's great experience in the matter and his very clear, concise and admirable descriptions have produced a book that is of the highest order. The illustrations are satisfactory and those in particular relating to the management of the head and brain will be found of great value. While the book does not make pretensions to any originality, the best methods pursued in this country and abroad have been carefully sifted and put to practical tests and from them the directions laid down have been deduced. It is to be hoped that eventually in this country in medico-legal cases certain lines of procedure will be insisted upon by law in making post-mortem examinations, as is done in some European countries. In the meantime this work is most heartily recommended. A little carelessness in proof reading, mars the otherwise satisfactory appearance of the book.

TEXT-BOOK OF DISEASES OF THE EAR. By Dr. L. JACOBSON, Docent at the University of Berlin. Leipsic: Geo. Thierre.

The extraordinary experience obtained during a period of more than a decade and a half as assistant at the Berlin University Clinic for Diseases of the Ear, has well fitted the author for his difficult task. In its struggle for acknowledgment as an independent specialty, otology has made great strides within the last years.

It is both interesting and fruitful for the general practitioner to study carefully the bearing of aural diseases on systemic troubles, and vice versa. Both acute and chronic ear diseases are generally first brought to the attention of the family physician. This clearly worded book will enlighten him which cases he can safely treat, and which he should refer to a specialist. The illustrations, 318 in number, will prove a great aid. As characteristics of the author's severely critical methods, we would draw attention to the bold and nihilistic stand he takes on the subject of differential diagnosis by means of the tuning fork.

DER VERBRECHER IN ANTHROPOLOGISCHER BEZIEHUNG. Von Dr. A. BAER, Geheimer Sanitäts-Rath, etc. With four lithographic plates. Leipzig, 1893. 456 octavo pages.

The scientific and modern consideration of the criminal type, a study introduced by Lombroso, has attracted the attention of some of the most acute observers throughout the world, and the literature of the subject has been very ably gathered by the author of this book, to which he has added a large mass of personal observations upon the criminals in the prison under his medical direction in Berlin. The care and thoroughness with which his investigations have been made and the conservative way in which he draws his deductions, gives more than ordinary weight to his conclusions. No one who has to do with the defective classes, or who is interested in anthropological studies, can afford to be without a knowledge of considerations of this character, and will find in this volume valuable aids to the mastery of the situation as far as it has been developed.

TRANSACTIONS of the Forty-third Annual Meeting of the Illinois State Medical Society, held on Chicago, May 16, 17 and 18, 1893. Cloth 528 pages. Chicago, 1893.

While the 1893 meeting of the State Medical Society was not a success in point of attendance, its transactions show that many valuable papers were read and that these papers were well and instructively discussed. It seems a pity that good papers instead of appearing in the medical journals should be embalmed in the transactions of a medical society, which are seen and read by comparatively few. It is gratifying to note in looking over this volume, the number of excellent papers which were presented at this meeting. The book is printed and bound like its predecessors and

presents the same general, neat appearance. The editor's work has been carefully done and the result reflects great credit upon him.

SURGERY. By BERN B. GALLAUDET, M. D., Demonstrator of Anatomy and Clinical Lecturer on Surgery, College of Physicians and Surgeons, New York, and CHARLES N. DIXON-JONES, M. D., Assistant Surgeon, Out-Patient Department Presbyterian Hospital, New York. Edited by BERN B. GALLAUDET, M. D. 291 pages, 149 illustrations. Cloth, \$1.75. Philadelphia: Lea Brothers & Co., 1893.

This is the final volume of the Students Quiz Series, which as a series has contained more information for the medical student in less space than any previous publication of its kind. It is excellently arranged and well edited. It is rich in tables and illustrations and contains an enormous amount of information in most compact form.

A TEXT-BOOK OF PHYSIOLOGY. BY MICHAEL FOSTER, M. D., F. R. S., Prelector in Physiology in the University of Cambridge. New Fifth American from the Fifth English edition, revised, with notes and additions. One octavo volume, 1,083 pages, with 316 illustrations. Cloth, \$4.50; leather, \$5.50. Philadelphia: Lea Brothers & Co., 1893.

Foster's Physiology is held in high estimation both in this country and abroad. The fifth edition is an improvement on a book already very good, and well sustains its previous high reputation. The revision has been thorough, the printers, illustrators and binders have done their work well, and the completed work will be warmly welcomed by the student, teacher and practitioner.

News Items.

THE KANSAS MEDICAL JOURNAL begins the new year as a weekly.

THE LATE SIR ANDREW CLARK left a personal estate exceeding one million dollars.

CIRCUMCISION of the negro is proposed by Dr. Remondino as a radical cure for rape.

Dr. JOHN L. HOWARD is announced as assistant editor of the *American Practitioner and News*.

VAN BENEDEN, the celebrated Belgian naturalist, died recently at the age of eighty-five years.

BILLROTH AND HIRSCH head the list of the distinguished dead in the medical profession for January.

HEUBNER, of Leipzig, has been elected the successor of Henoch in the chair of Pediatrics at Berlin.

THE LAKESIDE HOSPITAL held an annual staff meeting with a banquet, at the institution January 22.

Dr. PAUL DIDAY, the distinguished French surgeon, died on January 9, at the age of eighty-three years.

Dr. MURDOCH CAMERON has been appointed to the vacant chair of Midwifery in the University of Glasgow.

THE PRICE OF THREE FINGERS of the left hand was fixed at \$1,825 by a jury in Judge Sears' court last month.

A FEE of \$350 a day is given the physician to the Empress of Russia when in attendance upon his august patient.

Dr. J. B. MURPHY sails on the "Augusta Victoria" February 24, to attend the International Medical Congress at Rome.

Dr. JOSEPH PRICE has resigned as physician-in-charge of the Preston Retreat. His successor is Dr. Richard C. Norris.

JEFFERSON MEDICAL COLLEGE, through its faculty, has unanimously resolved to institute a compulsory four years' course.

Dr. R. HARVEY REED, editor of the surgical department of the *Railway Age* has moved from Mansfield to Columbus, Ohio.

THE CONSEIL GENERAL of the Seine Department has given 500 francs to the fund for the erection of a memorial to Charcot.

DR. CASSIUS D. WESCOTT has removed his office to the Marshall Field Building, and limited his practice to ophthalmology.

DR. I. A. ABT has located at 3505 Indiana Avenue. Dr. Abt was formerly assistant at the Kankakee Hospital for the Insane.

DR. JOHN H. MURPHY, one of the oldest and best known surgeons in the Northwest, died January 31, at his home in St. Paul, Minn.

THE HEALTH COMMISSIONER has arranged to build an emergency hospital to take the overflow of smallpox cases from the pest house.

PROFESSOR THEODORE BILLROTH, of Vienna, is reported to have died of heart disease February 5, at Abbazia, Austria, a winter resort.

THE OTTAWA MEDICAL SOCIETY has decided that "homeopathic and all other irregular" practitioners will no longer be countenanced.

AN EXCELLENT BUST of Prof. N. S. Davis, by Mr. Starr has been placed in the Art Institute of Chicago, where it is much admired.

THE CHICAGO CHARITY HOSPITAL directors met on January 22, filled vacancies on the board, and elected officers for the ensuing year.

THE EPITOME OF MEDICINE, after a career of ten years, has now lost its identity, and has been consolidated with *Braithwaite's Retrospect*.

THE SCHOOL OF PHARMACY OF THE NORTHWESTERN UNIVERSITY held its graduating exercises at Auditorium Recital Hall, Tuesday, February 6.

NURSES IN INDIA, employed on field service, are given by the Government an allowance of thirty rupees a month for the keep of a horse or pony.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK, will hold its eighty-eighth annual meeting in the City Hall, Albany, February 6, 7 and 8.

THE PHYSICIANS OF THE UNITED STATES now number 118,453; New York leads, with 11,171; Pennsylvania has 9,310, and Illinois ranks third with 8,002.

THE INTERNATIONAL MEDICAL MAGAZINE is now edited by Dr. H. W. Cattell, under the supervision of Drs. John Ashhurst, Jr., and James T. Whittaker.

THE GERMAN HOSPITAL, of Chicago reëlected their entire staff at their annual meeting. A credit balance was shown, with a report of an excellent years' work.

THE POST-GRADUATE MEDICAL SCHOOL, of Chicago, has formally announced its intention to increase its capital stock from forty to fifty thousand dollars.

Dr. ABRAHAM JACOBI, of New York was offered but declined the chair of pediatrics in the University of Berlin, made vacant by the resignation of Professor Henoch.

THE MORTALITY FROM DIPHTHERIA in the islands of St. Pierre and Miquelon has decreased eighty per cent since the adoption of sanitary measures against its spread.

Dr. ALEXANDRA PETROWA, of Sebastopol, one of the first to enter the medical profession after the issuance of the ukase allowing women to study medicine in Russia, is dead.

M. LAVERAN, whose researches on the etiology of malaria have earned him a well deserved reputation, was elected a member of the Paris Académie de Médecine on December 26.

POSITION WANTED.—A refined, intelligent lady, with experience, desires a position as attendant in a physician's office. Keeps books, etc. Address Mrs. A., care of the RECORDER.

THE NEW YORK ACADEMY OF MEDICINE has appointed a committee to organize a bureau for nurses, similar to the one in operation under the direction of the Chicago Medical Society.

PROFESSOR BROUARDEL has been elected Chairman of the Committee formed to collect subscriptions for a monument to Charcot. M. Pasteur is the Honorary President of the Committee.

SMALLPOX does not abate in Paris, and vaccination has been much neglected. There is now to be general and obligatory vaccination in all the communal schools, primary and secondary.

FOR RENT.—Dr. E. J. Kuh, Suite 1104, Columbus Memorial Building, will sublet a consultation room for the morning and afternoon; services of office girl and use of private telephone included.

SMALLPOX has attacked two of the nurses at the smallpox hos-

pital. One is seriously ill and may not recover. She had never been vaccinated. The other had been vaccinated, and will probably recover.

THE CROONIAN LECTURE of the Royal Society will this year be given by Dr. Ramon y Cajal, the distinguished Spanish physiologist, who has chosen for his subject "The Structure of the Nervous System."

THE NEW YORK MEDICAL JOURNAL makes very graceful mention of the excellent quality of the teaching of comparative anatomy in Chicago as evidenced by the work of Dr. Ohlmacher and his students.

FOR SALE.—At a sacrifice, a handsome three story brick building of 100 rooms, nicely furnished and well located on the South Side; very suitable for sanitarium or private hospital. Address H., care RECORDER.

Dr. A. H. FERGUSON, of Winnepeg, Manitoba, professor of surgery in the Manitoba Medical College will move to Chicago in a short time. He has been elected Professor of Surgery in the Post-Graduate Medical School.

Dr. SARAH HACKETT STEVENSON has resigned her professorship in the Woman's Medical School. She is the last member of the original faculty to retire, first holding the chair of physiology and for the past fifteen years the chair of obstetrics.

Dr. BILLINGS, Surgeon-general of The United States Army, has been elected an honorary member of the Royal Academy of Medicine of Belgium, and also a member of the International Statistical Institute, whose headquarters are at Rome.

A NEW EMERGENCY HOSPITAL, to cost about a hundred thousand dollars, is to be built by the friends and trustees of Tufts College; and the clinical advantages are to be given wholly and exclusively to the students of the Tufts Medical School.

THE LAMBERT PHARMACAL CO., of St. Louis, has recently been prosecuting a number of retail druggists for substituting when their preparations have been ordered, and have secured judgment with a perpetual injunction against the Auditorium Pharmacy Co. of this city.

MATHEWS' MEDICAL QUARTERLY devoted to diseases and surgery of the rectum and gastro intestinal tract has just appeared. Dr. Joseph M. Mathews is editor and Dr. Henry E. Tiley asso-

ciate editor. The first number aside from the vergency of its cover is most creditable.

THE PHYSIO-MEDICAL COLLEGE has won the first round in its fight with the Illinois State Board of Health. It obtained on January 20, an injunction, restraining the State Board of Health from incorporating in its annual report, any statement reflecting upon the standing of the college.

THE HARVARD MEDICAL SOCIETY, of New York City, at its annual meeting January 27, elected the following officers: President, Dr. R. W. Wilcox; Vice President, Dr. R. Whitman; Secretary and Treasurer, Dr. D. Brown; Executive Committee, Drs. J. W. Brannan, F. H. Daniels and H. Lilienthal.

AT A SALE of unredeemed pledges at a London pawnbroker's, there was purchased the casket in which the freedom of the city of London was presented to Jenner on the 11th of August, 1803, for "his skill and perseverance in the discovery of, and bringing into general use, the vaccine inoculation."

RED GLASS is to be tried in one of the smallpox pavilions at North Brother Island, New York, in order to test the value of the experiments made by Drs. Lindholm and Vinsen of Bergen, Norway, who claim that the pitting of smallpox patients is due to the sensitiveness of the skin to violet rays of light.

THE DEATH OF PROFESSOR RUDOLPH KALTENBACH is announced. He was professor of gynecology in the University of Halle, where he succeeded Olshausen in 1887. In 1867 he became the assistant of Hegar, then at Freiburg, and the two worked together as clinicians and authors for many years. He went from Freiburg to Giesen in 1883.

THE ELEVENTH INTERNATIONAL CONGRESS, through its officers informs those proposing to attend that members on any French, or Italian railways can secure half rates for round trip tickets, provided they are supplied with the necessary documents indicating their membership. Only the North German Lloyd and the French line have made reduction for the ocean trip.

NEARLY ALL THE MILK delivered in the morning to consumers in Chicago according to the Health Office is received by shippers from the farmer in the forenoon of the day previous and is allowed to stand until the morning it is distributed. During this time it is

the usual custom to remove cream from it. The milk delivered in the evening is usually received from the farmer the same day.

FOR SALE.—A practicing physician in a suburb of Chicago within one-half hour's ride of the city, desiring for good reasons to change his location, has a lucrative practice to dispose of to a brother physician speaking German. In the transaction there is a house with good grounds and buggies and two horses. This is a rare opportunity for the right man. Address M. T., care RE-CORDER.

THE MEDICAL CLUB OF CHICAGO, formerly the South Side Medical Society dined at the Tremont House January 26. It was Ladies' Night. The subject of discussion after the coffee was "Our Nurses" and the topic was divided into three heads, "Good, Bad and Indifferent Nurses." Drs. Dorland, Webster, Courtwright, Lodor and Engleman took up the matter in a pleasant vein. Dr. Archibald Church presided.

OSSIAN GUTHRIE, of Chicago, received word recently that Prof. F. A. Flückiger concedes in the *Apotheker Zeitung*, one of the most prominent pharmaceutical journals of Europe, the priority of the discovery of chloroform to Dr. Samuel Guthrie, of Sacketts Harbor, N. Y. Ossian Guthrie is a grandson of Dr. Samuel Guthrie. Heretofore the honor of the discovery has been divided between Leibig, of Germany, Soubeiron, of France, and Simpson, of England.

THE WEATHER IN CHICAGO during January showed a maximum temperature of sixty degrees on the 17th, the lowest temperature of nine degrees below zero on the 25th, with a highest daily range of twenty-three on the 17th. The prevailing direction of the wind was from the southwest, with a maximum velocity of fifty-one miles from the south on the 20th. There was a total precipitation of 1.05 inches, with ten cloudless days, nine partly cloudy days and twelve cloudy days.

THE ILLINOIS STATE BOARD OF HEALTH at their annual meeting, January 31, reelected Dr. William E. Quine, of Chicago, as President, Dr. J. W. Scott, of Springfield, as Secretary, and Dr. B. M. Griffith, of Springfield, as Treasurer. It was decided to extend the vaccination order of the board so as to make it include all children of school age in the State, and the teachers as well. The issuance of a circular relative to the prevention of tuberculosis was

ordered. The governor has appointed Dr. Julius Kohl, of Belleville, a member of the board.

THE HEALTH DEPARTMENT REPORT of mortality for January gives the death rate for the month 13.56; for the week ending January 27, the death rate was 10.62, the lowest on the records of the department. During January 1,808 deaths occurred, of which 312 were from zymotic diseases. Of these twenty-nine were from small-pox, seventy-four from diphtheria, thirty from scarlet fever, forty-six from typhoid fever, five from malarial fever, sixteen from cerebro-spinal fever, seven from erysipelas and ten from measles. Cancer was the cause of death in fifty cases, phthisis pulmonalis in 177, six homicides, twenty-five suicides and sixty-eight deaths from accidents occurred.

Dr. ADOLPH MEYER, pathologist of the Kankakee Hospital and docent in neurology at the University of Chicago, wishes to collect embryological material and would highly appreciate contributions from physicians, which will be duly acknowledged in forthcoming papers. The fetus up to the fourth month is best prepared in seventy per cent alcohol, if possible after fixation in a five per cent nitric acid solution for fifteen minutes. Later stages are best preserved in Müller's fluid, of which a large quantity must be used, and it should be changed every second day for the first week. Such specimens may be left at any down town office and if Dr. Meyer is notified he will send for them.

THE PRACTITIONERS CLUB held its monthly dinner at the Great Northern Hotel on January 29, with Dr. DeLaskie Miller presiding. The subject of expert medical testimony was taken up after a very pleasant dinner, and discussed by Drs. Archibald Church, D. R. Brower, Henry M. Lyman, D. A. K. Steele, Richard Dewey, W. T. Belfield and Joseph Zeisler. In order to secure a general expression from the various medical societies of the city regarding a better plan for presenting medical expert testimony in the courts with the ultimate object of securing legal enactments to that effect, a committee, consisting of Drs. Brower, Belfield and Church, was appointed. The meeting was largely attended and was one of the most enjoyable in the history of the club, the chairman being especially happy in his management of the occasion.

POTASSIUM PERMANGANATE, AN ANTIDOTE TO MORPHINE is the burden of Dr. William Moor's report to the German Clinic, New York. He demonstrated his faith by taking three grains of mor-

phine and immediately swallowing a solution of four grains of permanganate of potassium in four ounces of water. No effects of the morphine could be discovered. The antidotal property of permanganate of potassium for morphine, snake poison, etc., has long been known. Condry's fluid, a solution of permanganate of potassium was recommended years ago for these conditions. Dr. Moor's experiments have been tried in Chicago; unfortunately the dog which was the subject, refused to become affected, even after the hypodermic injection of six grains of morphine but continued lively and frisky, until the patience of the investigators was exhausted.

THE CHICAGO DEPARTMENT OF HEALTH found during the month of January, 188 cases of smallpox. One-hundred and eighty-two of these were removed to the smallpox hospital. Sixty three were discharged from the hospital well, leaving 112 in the hospital. There were twenty-nine deaths, seven of which died outside of the hospital. Some were dead when first discovered, others so near death that they were not moved to the hospital. All those who died outside of the hospital had hemorrhagic smallpox and were sick but a few days. None of them had been vaccinated and all confluent cases had not been vaccinated. Some of the fatal cases had been vaccinated in infancy. The following notice has been sent to all lodging houses: "Wash all bed linen and scrub all floors three times weekly. Require all lodgers to take at least semiweekly baths and furnish positive evidence of recent and successful vaccination." In the Milk Division 1,219 samples were collected and examined; 551 notices served and nineteen suits instituted.

PAMPHLETS RECEIVED.

A PETRIFIED EYE. By JAMES A. LYSTON, M. D., Ph. D., *Medical News*, Dec. 30, 1893.

DENDRITIC KERATITIS. By WM. H. WILDER, M. D. *Journ. Am. Med. Ass'n.* Oct. 21, 1893.

SEVENTH ANNUAL REPORT OF THE CENTRAL FREE DISPENSARY OF WEST CHICAGO. Nov. 30, 1893.

PRESIDENT'S ADDRESS. By J. M. EMMERT, M. D. *Proceedings Iowa State Med. Society, Des Moines, Iowa, 1890.*

- THE TREATMENT OF DIPHTHERIA. By F. E. WAXHAM, M. D. *Journ. Am. Med. Ass'n.*, Dec. 2, 1893.
- ON THE MICROBIC ORIGIN OF CHOREA. By CHARLES L. DANA, A. M., M. D., *Journ. Am. Med. Ass'n.* Jan. 1894.
- PROSPECTUS OF THE BATTLE CREEK SANITARIUM. EDITORIAL ON THE BATTLE CREEK SANITARIUM. *Chicago Clinical Review*, 1893.
- OLIVE OIL AS A REMEDY IN THE TREATMENT OF GASTRIC ULCER. By EMANUEL J. SENN, M. D. *Chicago Clinical Review*, Jan. 1894.
- SURGERY OF THE URETERS. A clinical, literary and experimental research. By WELLER VAN HOOK, A. B., M. D., *Journ. Am. Med. Ass'n.* Dec. 16 and 23, 1893.
- THE WATER SUPPLY OF CHICAGO: Its sources and sanitary aspects. By ARTHUR R. REYNOLDS, M. D., AND ALLEN HAZEN, S. B., *Chicago Medical Recorder*, Dec. 1893.
- THE SUCCESSFUL MANAGEMENT OF INEBRIETY WITHOUT SECRECY IN THERAPEUTICS. By C. H. HUGHES, M. D. *Alienist and Neurologist*, St. Louis, Mo., January, 1894.
- ONE YEAR'S WORK IN TUBAL AND OVARIAN LAPAROTOMIES. Thirty-seven cases without a death. By FRANKLIN H. MARTIN, M. D., *Journ. Am. Med. Ass'n.*, March 18, 1893.
- OÖPHORO SALPINGITIS WITH OPERATION. *Chicago Med. Recorder*, Sept. 1893. TRAUMATIC CEREBRAL ABSCESS WITH CASE. *Chicago Clin. Review*, Dec. 1893. By OSCAR J. PRICE, M. D.
- THERAPEUTICS OF ELECTRICITY IN RHEUMATISM, GOUT, AND DISEASES OF THE LIVER AND KIDNEYS. By A. D. ROCKWELL, A. M., M. D. *Therapeutic Gazette*, Detroit, Mich., Dec. 15, 1893.
- LACTATIONAL INSANITY. *Jour. Am. Med. Ass'n.*, Sept. 1893.
- FURTHER OBSERVATIONS ON THE RELATIONS OF PELVIC DISEASE AND PSYCHICAL DISTURBANCES IN WOMEN. *Med. and Surg. Rep.*, July, 1893. By GEO. H. ROHE, M. D.
- VITELLINE DUCT REMAINS AT THE NAVEL; ACUTE ULCERATIVE ENDOCARDITIS, *Jour. Am. Med. Ass'n.*, June, '93; SARCOMA OF THE PONS AND GLIO SARCOMA OF THE CEREBELLUM. *Jour. Am. Med. Ass'n.*, Feb. '93. By LUDVIG HEKTOEN, M. D.
- PERITYPHLITIS. REPORT OF THREE CASES OF PERFORATING CECITIS AND PERICECITIS. *Chicago Clinical Review*, June, 1893. A NEW METHOD OF CONTROLLING HEMORRHAGE OF THE SCALP. By F. C. SCHAEFER, M. D. *Chicago Clinical Review*, Nov. 1893.

THE CHICAGO MEDICAL RECORDER

MARCH, 1894.

Original Articles.

OPERATIVE SURGERY OF THE GALL TRACTS,
WITH ORIGINAL REPORT OF TWENTY SUCCESSFUL CHOLECYSTENTER-
OSTOMIES BY MEANS OF THE ANASTOMOSIS BUTTON.

By JOHN B. MURPHY, M. D., CHICAGO, ILL.

PROFESSOR OF SURGERY, COLLEGE OF PHYSICIANS AND SURGEONS; PROFESSOR OF SURGERY,
POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING SURGEON COOK COUNTY
HOSPITAL; ATTENDING SURGEON ALEXIAN BROTHERS HOSPITAL;
VICE PRESIDENT OF NATIONAL ASSOCIATION OF
RAILWAY SURGEONS, ETC.

Of the many absorbing topics of medical literature, of the many changes in the art of surgical treatment made in the last two decades, of the many glorious achievements attained in this period under aseptic and antiseptic methods, of the many of these in which the results are still imperfect and offer great reward for honest experimental and clinical research, one of the youngest and yet a very interesting and inviting one is the surgery of the gall tracts. All of its achievements are the fruit of very little over a decade of labor, and probably we have only just begun to make progress in this direction; great possibilities are before us. In drawing your attention to this subject to-day, it is not my desire so much to enumerate the steps already accomplished, as it is to ask your assistance for its further advancement. The scope of this paper includes only the operative element of the surgery of the gall tracts; I will therefore not go into details as to the lesions which produce the necessity for the operation, but will only refer to them cursorily, as indications for the special operations to be performed. We will first devote a few minutes to the surgical anatomy of the region

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

in which they are situated, as well as to the tracts themselves. Second, we will consider the functions or physiology of the gall bladder and gall tracts; for good surgery is based on good physiological principles, and good operations must be executed on good anatomical lines. Third, we will take up the individual operations, and the special indications for each.

THE GALL BLADDER.

The fundus of this organ lies opposite the ninth costal cartilage, close to the outer edge of the rectus, the body itself is situated in a fossa on the under surface of the right lobe of the liver, having the quadrate lobe to its left. It is in immediate contact with the hepatic flexure of the colon, and the first portion of the duodenum. The gall bladder is of pyriform outline, and when full is seen projecting beyond the anterior border of the liver, coming in contact with the abdominal wall at the cartilage of the ninth rib. It extends almost directly backward, deviating only a little to the right and upward; it measures from two and one-half to four inches in length, and one and one-half inches in diameter at the widest part, and holds about one fluidounce. It is always found full, except where some external pressure is brought to bear upon it. It is attached to the liver by connective tissue, the lower surface is covered by peritoneum, though occasionally it entirely surrounds the viscus and forms a sort of mesentery to attach it to the liver. The neck of the gall bladder gradually contracts until it forms the cystic duct. This duct is a tube an inch to an inch and a half long, which connects the neck of the gall bladder with the hepatic duct, and combines to form the common duct, or the ductus communis choledochus. The cystic duct is directed backward and to the left as it runs in the lesser omentum; the hepatic artery being to the left and the portal vein behind. The hepatic artery passes behind the hepatic duct and between it and the portal vein. This is a very important point to remember, as it assists the operator in differentiating between the duct and the vein in operations. The duct and the vein having the same color, and being situated in close proximity, it is very important to recognize the duct in this situation above the artery, and the vein below it. The hepatic duct is formed by a branch from each lobe of the liver in the transverse fissure, and is directed downward and to the right in the lesser omentum, the hepatic artery being to the left at its first part, and then behind. It is not quite two inches long and joins with the cystic duct to form the common duct. The common bile duct

is about three inches in length, it passes down between the layers of the lesser omentum, immediately in front of the portal vein, and to the right of the hepatic artery; it then passes behind the first part of the duodenum, then between the second part and the head of the pancreas and ends at the lower part of the second segment of the duodenum by opening into that part of the intestine on its left side and somewhat behind. It pierces the intestinal wall very obliquely, running between the muscular layers for about three-quarters of an inch. The pancreatic duct enters the common duct just before its termination. Immediately below where the pancreatic duct opens into the common duct, there is a dilatation of the common tube, called the ampulla of Vater. There is a slight constriction at the terminus of the duct, the papilla. This papilla in the duodenum is about four inches from the pylorus. The common duct has a diameter of two lines, its width at the ampulla is three lines, it is narrowest at its outlet into the duodenum. The cystic and hepatic ducts are a little narrower than the common duct. The diameter of the ducts is a matter of considerable practical importance; that of the cysticus and choledochus being so near alike, that a concrement that will produce obstruction in the former will do the same in the latter, though of a lesser degree until it reaches the ampulla, where there is considerable more space. Stones are frequently retained in the ampulla, as the orifice of the duct in the intestine is much smaller than any portion of the tract. Calculi retained in this position buried behind the duodenum produce very grave symptoms, as jaundice, and a septic fever of a typical intermittent character.¹

Obstruction at this point, on account of its location, is so very difficult to reach and remove that the surgeon, in place of attacking the obstacle producing the obstruction, selects a method of circumventing it and allows the bile to enter the duodenum through another tract, viz., by cholecystenterostomy. It will be seen that the distance from the fundus of the gall bladder to the opening of the duct in the duodenum is made up of the combined lengths of the gall bladder, ductus cysticus and choledochus, measuring in all from six and a half to eight and a half inches. This should be remembered in sounding the ducts for obstructions with a bougie or probe. The gall bladder consists of three coats, the serous, the fibrous and muscular, and mucous. The serous coat covers only about two-fifths of the surface, that on its under side. The mu-

¹ See Dr. W. E. Quine's excellent monograph on this subject.

cous is raised in rugae, bounding polygonal spaces, which are largest about the body. These rugae play an important part in the formation of hepatic calculi. The mucous membrane is lined with columnar epithelium, and contains many mucous glands. At the neck the mucous membrane forms folds projecting into the interior acting as valves, Heister's. This layer contains an anastomosis of blood vessels and a fine plexus of lymphatics; the presence of these lymphatics accounts for the formation of secondary abscesses and septic manifestations from infective lesions of the gall bladder. The fibrous and muscular coat consists more of fibrous than muscular tissue and has but very little power of contraction, since I found in the healthy gall bladder of the dog, by ligating the ductus cysticus, that only a small quantity of bile, average thirty drops, was forced out by the automatic contraction of the gall bladder through a canula placed in its wall; this quantity representing only about six per cent of the contents of the gall bladder.

PHYSIOLOGY.

This leads us to a consideration of the physiology of the gall bladder. The gall bladder is credited by physiologists with being the store house for the bile. Landois states that "the gall is secreted continually, but part is stored in the gall bladder, and poured out copiously during digestion." This expresses the accepted theory of the functions of the gall bladder. I desire to question the correctness of this theory, and in order to place the issue more clearly before you, I make the assertions, bold as they may seem, first, that the gall bladder is not for the purpose of storing the bile and delivering it into the intestines on demand; second, that the gall bladder is the controller or governor of the tension of the bile circulation. When we consider that the amount of bile secreted daily is forty ounces, Murchison; 566 grams, Westphalen; or 652 cubic centimeters, John Ranke; or about 105 minims to each pound of body weight, we can readily see what little difference it would make in the quantity and current of bile entering the intestines at the time of digestion, even if the gall bladder should contract and empty its whole contents, one ounce, into the intestine during the period of two hours of time, *i. e.*, the two hours between three and five hours after the ingestion of a meal. For instance, the bile flows most rapidly at two periods *viz.*, between three and five hours and between eleven and thirteen hours after the ingestion of food; in those two periods about ten ounces of bile is discharged. If the quantity of bile forced out of the gall blad-

der by its inherent contraction, one-half drachm, be added or taken from these ten ounces, would it make any perceptible difference in the current? It can be readily seen that it would make no appreciable difference in the whole quantity discharged, *i. e.*, ten ounces. We are then forced to the conclusion that the liver secretes at these periods this large quantity and that it is not "poured out" by the gall bladder as stated by Landois. Again, if the function of the gall bladder were to contract and expel its contents during the act of digestion, would we not frequently find an empty and physiologically contracted gall bladder either ante-mortem or post-mortem? I have yet to find one, notwithstanding I have observed them on the living and dead subjects, at all hours before and after eating and I have yet to see a surgeon who has found a physiologically empty gall bladder. That the gall bladder does not empty and fill with each digestive act is further supported by the fact that the bile in the healthy gall bladder is of much greater specific gravity than that in the hepatic, cystic and common ducts of the same subject. The bile in the cystic duct is like the bile in the hepatic and common ducts, and differs from that in the fundus of the gall bladder. If the bile in the gall bladder emptied and filled several times in each twenty-four hours, *i. e.*, after each meal, it should have the same specific gravity as the bile in the cystic duct, which is not the case. Further, the bile in the cystic duct, has the same specific gravity as that in the hepatic and common ducts which shows that only this small quantity changes with the contraction and dilatation of the gall bladder. This degree of contraction and expansion is very limited, depending on the degree of tension of the bile circulation. After ligation of the cystic duct at its junction with the gall bladder, and extirpation of the latter, it has been found that in a number of months the cystic duct becomes much dilated, resembling a miniature gall bladder, Oddi. I have verified this by one experiment.

EXPERIMENT III.—Dog, male, weight thirty-five pounds. May 14, 1892, cholecystectomy, silkworm gut ligature of adhesions to liver; subsequent section, silkworm gut ligature of ductus cysticus, top sewing peritoneum. The dog was sick for the first forty-eight hours, after that he rapidly improved and in four days he was apparently as well as ever. No jaundice. June 12, the dog has become very fat and is the most playful dog in the laboratory. August 31, dog killed. The cystic duct was found to be dilated to a globular sac, five-eighths of an inch in diameter.

After a gall bladder and intestinal fistula has been established,

gradual contraction occurs; the gall bladder contracts to a tube not much larger than the cystic duct, as the element of tension is here entirely removed. This change requires several weeks. I do not know that dilatation of the cystic duct after cholecystectomy has been observed in man; it is possible that it does not occur since in man there is no sphincter muscle at the opening of the common duct into the intestine, as in the dog. The tension theory of the gall bladder is further supported by the mechanical relations of the gall bladder and cystic duct to the hepatic and common ducts. It will be noticed that they occupy the same relative position to the current of bile passing along the hepatic and the common ducts that the air chamber in the fire engine does to the stream of water flowing from the pump to the hose. The elasticity of air in the small air chamber contributes greatly toward producing a continuous instead of a pulsating stream, as would occur with the strokes of the piston, were there no elastic chamber. In place of the air in the case of the gall bladder we have the elasticity of the walls of the viscus itself, which keeps up the continuous pressure by its expansion and contraction and thus acts as a tension controller of the bile circulation. The gall bladder is congenitally absent in a considerable number of animals and men, and its absence appears to have no appreciable effect on the health of the organism. I have gone into the details of this somewhat thoroughly because a clear understanding of the physiological principles is necessary in order that we may better judge the most desirable operations to be performed under given circumstances.

The various pathological conditions of the gall tracts which necessitate operative interference requiring laparotomy, to which line of operations this paper will be confined, I will only mention by name, and will not go into the details of each. In the order of frequency with which they produce disturbances they should be classified as follows:

1. Cholelithiasis, gall stones; a, in the gall bladder; b, in the ductus choledochus; c, in the ductus cysticus; d, in the ductus hepaticus; e, in the diverticula; f, ulcerative perforation into the peritoneal cavity.
2. Cholecystitis, empyema, hydrops.
3. Cancer of the pancreas.
4. Neoplasms involving the ducts.
5. Carcinoma of the gall bladder.
6. Traumatism.

OPERATIONS.

The operations on the gall tracts after the abdomen has been opened are well divided into ten classes, viz.:

1. Puncture of the gall bladder.
2. Incision into the gall bladder without further operative procedure.
3. Suture of the gall bladder to the abdominal wall with secondary incision, cholecystostomy, two sittings.
4. Suture of the gall bladder in the abdominal wall with immediate incision, cholecystostomy, one sitting.
5. Incision of the gall bladder, removing its contents, immediate suture of the gall bladder and suturing it in the wound of the abdomen, cholecystotomy.
6. Incision of the gall bladder with immediate suture and reposition in the abdomen, cholecystendysis, ideal cholecystotomy.
7. Cholecystenterostomy, gall bladder and intestinal fistula.
8. Cholecystectomy. Removal or amputation of the gall bladder.
9. Choledocholithotripsy or crushing of gall stones in choledochus.
10. Choledocholithectomy, with subsequent suture of duct.

INDIVIDUAL OPERATIONS.

I. *Puncture of the Gall Bladder.*—The puncture of nonadherent gall bladder after opening the abdomen has been performed but a very limited number of times (twenty-five), and through error in diagnosis in the greater number of cases. Eight times the operation was performed for its therapeutic effect, after the abdomen had been opened. Four of these eight were supposed to be circumscribed hydrops of the peritoneum; two of these cases terminated fatally. In the other four, the diagnosis was clear and the object of treatment was to relieve the patient by aspirating the gall bladder. The cause of the dilatation was in three, cancer of the pancreas; in one it was due to calculus in the cystic duct. The final outcome in one case was unknown; one of the cases died of exhaustion after repeated puncture; in the other two cases cholecystotomy was performed, one of two died. We have here then a fatality of twenty-five per cent from simple puncture of the nonadherent gall bladder. In the other seventeen cases the puncture was purely explorative. Puncture of the gall bladder from the surface of the abdomen without incision was suggested by G. Harley for the pur-

pose of sounding for gall stones. He pronounced it an easy and safe method for sounding for impacted stones, but his patient died twenty-four hours after the operation of "enteritis and peritonitis." This operation is to be condemned first, because there is great doubt that a diagnosis can be made with a needle, even if a stone is present. Second, a needle puncture of the gall bladder is dangerous because the opening remains patulous, as I have frequently seen following aspiration preparatory to insertion of the button, from an absence or very limited contractile power of the tissues of the wall of the gall bladder and from tension by the bile pressure within. Third, if the contents of the gall bladder in the case should be septic, we would have as a result a septic peritonitis. Cour-

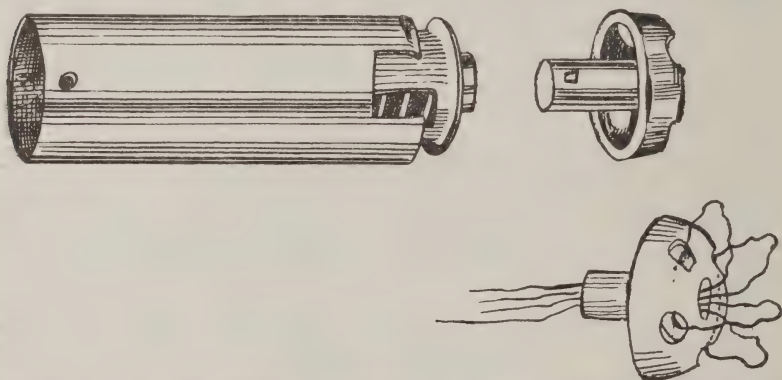


FIGURE 1.—Drainage tube button illustrating half of button threaded for introduction into gall bladder.

voisier says, "that a surgeon should even hesitate to aspirate a case where the diagnosis of gall bladder lesions was even suspicious, and never except where no other means of diagnosis is left, a laparotomy being a much more rational and safe method."

II. *Incision of the Gall Bladder Without Further Operative Procedure.*—This operation is performed for and should be limited to cases where the gall bladder, on account of the gangrene of its wall or extensive adhesions all around it render it impossible to either suture it to the abdominal wall or approximate it to any portion of the intestinal tract, and where it is compulsory to secure drainage of the bladder or to use the bladder as a canal to allow the escape of bile in obstructive jaundice, that jeopardizes the life of the patient. A drainage tube may be inserted in the incision of the gall bladder and packed around with gauze (Maurice H. Richardson), the omentum drawn about it with a few sutures to prevent the fluid passing into the peritoneal cavity, or what is still better,

my method of insertion of a "button tube drainage," of the pattern I here present, Fig. 1. This has the advantage; (1,) that it can be easily and rapidly inserted deep in the abdominal cavity, though the gall bladder may be very much contracted; (2,) that it prevents with certainty the contact of the gall bladder contents with the abdominal viscera until such time as adhesions have formed around the tube; and 3, that it leaves a large opening, when the instrument is withdrawn from the gall bladder, through which calculi may be extracted. The operation with the "button tube" is performed as follows: An incision is made in the abdominal wall in the usual position for operations on the gall bladder beginning at the ninth costal cartilage, parallel to the external border of the rectus muscle for a distance of two and one-half inches. The gall bladder is located, a sufficient surface of its wall exposed, the contents aspirated, the purse-string suture inserted, the gall bladder incised, male half of button inserted, purse string tied and cut short; the tubular portion of the button is then pressed into position; the tube is then drawn out as far as the gall bladder will permit and held there with a pin passed through the openings in the side. During the time the pressure atrophy in the portion of the gall bladder clasped between the button is taking place, a cicatricial wall is being formed about the tube which acts as the walls of a sinus after its production and insures continued protection to the peritoneal cavity.

The following operations were performed:

CASE I. Mrs. K., æt. thirty-five, several children. This case was referred to me by Dr. J. H. Hoelscher who furnished the following history: Four years ago the patient was first attacked with severe pain in the region of the gall bladder, which was soon followed by nausea and vomiting. This pain lasted several hours and a few days after the onset the patient became very much jaundiced. Tenderness continued over the gall bladder for ten days or more after the attack. These attacks occurred at frequent intervals during the past four years; after some of the attacks she passed gall stones and has a collection of them on hand. About two years ago she had one very severe attack lasting much longer than the others and accompanied by more pain, fever and tenderness. It took her a long time to rally from this attack. The last attack, ten days before operation, was followed by jaundice and a few stones were passed. Not more than half of the attacks were followed by jaundice. She suffered very much most of the time from digestive disturbances and a constant aching in the side.

Present Condition.—Patient a well nourished, stout, healthy-

looking individual. On examination we find a large sensitive tumor extending down about three inches below the right ninth costal cartilage. This tumor can be felt separate and distinct from the kidney, and presses against the abdominal wall in front. It moves synchronously with the diaphragm in respiration.

Diagnosis.—Cholelithiasis with pericystitis. Operation by Dr. Murphy, assisted by Drs. Hoelscher and Lee. Present, Dr. MacFadden Gaston, of Atlanta; Dr. Quimby, of Jersey; Drs. Cole and Owings, of Montana; Dr. Jelks, of Hot Springs; Drs. Wittwer, Hartmann, E. H. Lee, Conley and Oswald. The usual incision was made at outer border of rectus. The gall bladder was completely surrounded by adhesions and contracted: it was impossible to approximate it to the abdominal wall or to any portion of the bowel. It was decided to put in the drainage button tube. A portion of the fundus of the gall bladder was exposed sufficiently large to insert the button and to place it in position. A number of calculi were removed and many allowed to remain. The tube projected above the wall of the abdomen, and the wound outside was packed with iodoform gauze. The button tube liberated itself on the seventh day, and a number of stones followed. The patient made an uninterrupted recovery, and is now in excellent health; has a small sinus, but no bile is escaping, August 20, 1893. September 15, sinus closed.

CASE II. Mrs. M——, æt fifty, Indianola, Neb.

Diagnosis.—Cholelithiasis, impaction in choledochus. Had had repeated attacks of gall stone colic, accompanied by jaundice, in the last four years. For the last year the jaundice has been continuous.

Operation.—November 1, 1893. Found gall bladder very much contracted; filled with a dozen calculi. Firmly adherent throughout; evidence of old pericystitis. Duodenum adherent. As the approximation to duodenum could not be made, the gall bladder was incised, stones removed and the drainage tube button inserted and packed around with iodoform gauze. The button tube liberated itself on the tenth day. Two calculi followed it, which evidently had been returned from the ducts into the bladder. Jaundice disappeared. Sinus closed on twenty-first day. Patient about the ward on twenty-eighth day. Discharged from the hospital December 6.

The number of cases of operation by incision and drainage in literature is twenty-three, with four deaths, a mortality of about eighteen per cent. As this is not an operation of election, the pe-

cularities of the individual case will be the guide to the surgeon as to when it must be performed.

III. *Suture of the Gall Bladder with Secondary Incision, Cholecystostomy in Two Sitzings.*—The serous surface of the gall bladder is united to the margin of incision in the abdominal wall and a sufficient time is allowed to elapse for adhesions to take place, from five to fifteen days; then an incision is made in the gall bladder and its contents allowed to escape. The operation was first suggested by Carri, and executed by Blodgett and Kocher in 1878. Courvoisier collected thirty-two cases. Riedel operated in this manner thirty-four times, eleven of these are included in Courvoisier's report. I find in the literature from June, 1890, at which time Courvoisier's report was published, to February 28, 1893, but four cases, with the exception of those of Reidel, twenty-three cases, making a total of fifty-nine cases, with six deaths, or a mortality of ten per cent. Of the patients that left the hospital, about thirty-four per cent were discharged with a fistula; these had an average treatment of two and one-half months. Riedel has championed this operation from the beginning and has persistently adhered to it while other surgeons have taken up the operation of one sitting, as shown by the statistics, only four operations of this kind being reported since June, 1890. Bardenheuer, Langenbuch, Mikulicz and Lauenstein have been strong advocates of this operation in the order mentioned, but have all deserted it, notwithstanding its favorable statistics, leaving Riedel alone its great advocate. The indications for this operation are the same as for cholecystostomy of one sitting, to be mentioned hereafter.

IV. *Cholecystostomy in One Sitting, Suture with Immediate Incision.*—The first operation of this kind was performed on July 15, 1867, by Bobb, who was making a laparotomy on the diagnosis of ovarian tumor, this being the first laparotomy opening of the gall bladder and cholecystostomy of one sitting. Without a knowledge of this case, in the years 1878 and 1879, Marion Sims, W. W. Keen and Lawson Tait performed the same operation without previously diagnosing the case. This operation was named by Lawson Tait "ideal cholecystostomy." It would be more appropriately termed unnatural cholecystostomy, as it is not natural for the gall bladder to empty on the surface of the abdomen. The term "natural cholecystostomy" should be reserved for the operation known as cholecystenterostomy, because the bowel is the natural receiver of the contents of the gall tracts. From that time there have been collected by Courvoisier 120 cases, by

Riedel 12 and by myself 69, making a total of 201 cases. The histories of many of these cases are very defective, first, as to the previous conditions; second, as to the status praesens and clinical history; third, as to the condition when discharged. Tait operated upon fifty-seven of these cases. In the very great majority he leaves out all the particulars above mentioned. In many he does not mention whether the fluid contents of the gall bladder was bile, hydrops, or pus, and in others he does not mention even the presence or absence of stone, though this item is less frequently omitted. I find in 163 cases stones reported in 112, and in about 75 per cent of these the stones were situated only in the gall bladder; in about 12 per cent in the gall bladder and cystic duct; 8 per cent in the cysticus alone; 3 per cent in the choledochus, and the balance scattering. In all cases where found, the stone was extracted from the gall bladder at time of operation. In other cases where stones were situated in the ducts, a lithotripsy was performed either by the fingers, by forceps, or by passing a needle through the wall of the duct and fracturing the stone. In other cases the stones were pressed onward out of the duct into the intestine or back into the gall bladder; in still others they were cut down on in the duct and removed through its wall. Of this I will speak later. The mortality in the 201 cases of cholecystostomy while the patients were still under treatment, was 39 or about 19 per cent. The number of cases discharged with fistula cannot be approximately determined as Tait's report is incomplete and excluded. From other statistics we have discharged with fistula about 31 per cent, and with the same exclusion as above complete recoveries 51 per cent. We see that the mortality in the one sitting was less than in the two sittings operation, in one case being 10, and the other 19 per cent, but still the outcome as to the ultimate complete recovery is approximately the same as in the operation of one sitting, and not a promising one for the patient. Still some surgeons have had brilliant results, and the renowned Dr. H. O. Marcy, of Boston, says: "It is safe to predict that the future history of operative measures for the relief of biliary obstructions, will furnish one of the most brilliant chapters in surgery. One of the most serious of all the abdominal diseases, as evinced by acute pain, prolonged suffering, and great mortality, confessedly without remedy by internal medication, cholecystostomy offers help to the hopeless with an attendant danger in the hands of an experienced surgeon of as small a percentage as in ovariectomy."

Cholecystostomy by Means of Murphy Button.—This operation can be performed with the anastomosis button in much less time and with much greater safety than with suture, in the following manner: The half of the button that is to be introduced into the gall bladder is first threaded by passing two pieces of surgeon's silk about eighteen inches long through the four drainage openings in the bowl of the button, each thread being passed through two of the openings nearest one another, the four ends of the threads are drawn even and then passed through the cylinder of the button, entering the cylinder at its junction with the bowl. This enables traction to be made on this half of the button after it has been placed in position in the gall bladder, thus permitting a firm approximation and locking of the two halves of the button. The threaded half of the button is inserted into the gall bladder in the same manner as in cholecystenterostomy; an artery forceps is then pushed through the parietal layer of the peritoneum, one-half inch to the side of the incision, grasping the stem of the button inserted in the gall bladder and drawing the stem through the opening made by the artery forceps; pass the traction cord through the other half of button, draw the button together and remove the threads. Sew up original opening in the peritoneum with catgut. You have now secured a firm, permanent approximation of the surface of the gall bladder to the parietal layer of the peritoneum. The gall bladder will drain through the button, and if the button drainage tube is used the discharge can be brought to the surface, without coming in contact with the wound. This operation has the advantage over the suture approximation; 1, in the great saving of time; 2, simplicity and ease with which it can be accomplished; 3, it insures perfect coaptation and no danger of leaking at the side, or giving way, as is the case is with the suture which occasionally causes death; 4, it leaves a large opening. As soon as the pressure atrophy is completed gall stones may be extracted through this opening and a perfect drainage kept up. I am always in favor of performing cholecystenterostomy where it is possible, still if the pathological conditions require a cholecystostomy, this is by far the most simple, rapid and safe means of operating.

V. *Incision of the gall bladder, removing its contents, suturing it to the abdominal wall with immediate extraperitoneal suture of the incision made in the gall bladder.*

I am unable to find but four cases of this kind reported. The operation has never found great favor with surgeons. Of the four

cases operated on, three terminated successfully, and one fatally, a mortality of twenty-five per cent. It was intended to take the place of cholecystendysis, and to diminish the danger by having the suture in the gall bladder extraperitoneal, so that if the suture should give way or leak, the contents would escape on the surface instead of into the peritoneal cavity.

VI. *Cholecystendysis*.—Incision of gall bladder with immediate suture and reposition into abdominal cavity; ideal cholecystotomy. This operation on the gall bladder is a natural outgrowth of the desire of laparotomists to immediately and permanently close the abdomen at the time of the operation as in the intraabdominal treatment of pedicles in gynecological operations. I find thirty-five cases of this kind in the literature, with eight deaths and twenty-seven recoveries, a mortality of twenty-three per cent. The cause of death was: In one case collapse, in two cases anuria with collapse, three with high fever and peritonitis. All of the immediately fatal cases, six, or seventeen per cent, terminated within seventy-two hours after the operation. The remaining two terminated later. What was most feared in this operation was that the stitches would give way under the tension of the gall pressure and that the contents of the gall bladder would escape into the peritoneal cavity. Langenbuch and Tait were very loud in their declaration that this accident would occur, and Tait in his article in the *Edinburgh Medical Journal*, October, 1889, stated that the operation terminated fatally in every instance, while in reality up to that time there had been sixteen operations, with ten recoveries, and in not one of them did the accident, "giving way of sutures," as Langenbuch and Tait had predicted, occur. This is a very noticeable illustration of an error of common occurrence. It shows how erroneous the opinions of great men in surgery may be on operations suggested and performed which are not in line or in harmony with the ones they are accustomed to perform, the calamity which they so forcibly predicted and deemed inevitable was the one that never occurred. While the cause of death was not from giving way of sutures the mortality was great, being about one-third of all cases operated on. This great mortality has rapidly told against the operation, so that it is now rarely performed and is not to be recommended.

VII. *CHOLECYSTENTEROSTOMY. Gall Bladder and Intestinal Fistula—Gall Bladder and Intestinal Anastomosis*.—The idea of this operation was suggested by nature in establishing pathologically a fistula between the gall bladder and the intestines. In this way

the surgeon was guided to the best means of relief where an occlusion of the duct was produced by the pressure of an impacted concrement, a neoplasm, a cicatricial band, or any pathological lesion which would render the common duct impervious. While nature had thus blazed the way, surgeons were slow to take advantage of its suggestion. The first one to advise this method was my late friend, the lamented von Nussbaum, of Munich in 1880. He expressed himself in the following words: "When the escape of gall through the natural duct is no more possible, the question arises can we not make an artificial connection between the gall bladder and intestines through which the gall can again escape into the intestinal tract," etc.

The first to work out a feasible plan for the attainment of this ideal result was von Winiwarter. Between the 20th of July, 1880, and the 14th of November, 1881, he had under his care a man, with occlusion of the ductus choledochus, on which he operated six different times, and finally succeeded in establishing a fistula between the colon and the gall bladder, after 16 months of labor. His original plan was to perform the operation in two sittings, but all sorts of difficulties beset his way. It is wonderful what energy and persistence both the operator and patient showed to overcome all impediments. After the publication of his most difficult task it was six years and a half before a surgeon was found who had the courage to undertake a similar operation, when Kappeler undertook to follow in the footsteps of Winiwarter, but to do the operation in one sitting.

In the meantime there were several experiments made on animals, with the hope of discovering a means of making a communication between the gall bladder and the intestine at one sitting. Dr. McFadden Gaston, in 1883, experimented on five dogs, with elastic suture, which was so placed as to approximate the gall bladder and intestines, and around this a row of serous sutures to protect the peritoneum. He hoped by the elastic pressure to produce an atrophy and establish a fistula. The results were unfavorable. In one the dog escaped; two ended in peritonitis; one in abscess between coils of intestine—here the ligature sloughed through into the gall bladder, and left but an extremely small opening; and in one, at the end of the eleventh day, there was found sufficient adhesion and the fistula was established, the ligature being found in the intestine. In 1884 he used a similar ligature on a young dog, in the same manner, with a good result. In 1886 he made several similar experiments, with the addition of ligating the common duct,

but the dogs only lived a few days, dying of extensive gall infiltration in the liver. He deserves great credit for energy and ingenuity as a pioneer in this field.

G. Harley suggested the approximation with the formation of fistula from the gall bladder to the intestine by means of sutures and caustic potash. He arranged a number of sutures in a small circle, about the size of a dollar, holding the gall bladder to the bowel, but before completing the circle mentioned, cauterized the center with caustic potash, then completed the circle with sutures, and in that way hoped to produce a fistula of the gall bladder and have an adhesion by plastic exudation surrounding it. He claims to have had good success in animals.

Colzi, in 1883, put in a circle of sutures similar to Harley's, but before the final suture, made an incision in the center into the gall bladder and duodenum, also ligating the choledochus. The animals tolerated the operation without any apparent disturbance in the digestive functions.

De Page, in 1887, performed the same experiment as Colzi, on three dogs, without ligating the choledochus. In one the dog ran away; another died of peritonitis; the third was killed at the end of six weeks and showed an atrophy of the gall bladder, but no fistula. Finally, Dastre, in his communication to the Physiological Congress at Basel, in 1889, published his experiments, wherein he succeeded in uniting the gall bladder to the intestine for the purpose of studying what effect it would have on digestion. Of this I shall speak later.

So that we see to the date above mentioned experiments represented three different types. 1. The formation of fistula by chemical destruction. 2. By pressure atrophy, the elastic ligature. 3. Careful suturing with subsequent incision within the circle produced by the sutures.

The priority of the operation certainly belongs to Monastyrski, for he performed his operation about a month before Kappeler, but did not publish it until eleven months after the operation. Of the seven operations performed, four were for carcinoma of the head of the pancreas, one for carcinoma of the duct at its orifice, and two were for impaction of gall stones; those of Terrier and Courvoisier. The technique in all of the above described operations was somewhat similar, the suture being used as the means of approximation, Terrier used a rubber tube to keep the opening patent which was passed on the eighth day. The seat of the operation in Terrier's case was the duodenum; in Monastyrski's, the jejunum.

2 in. below the duodenum; in Kappler's, 226 ctm. above the cecum; in Fritzsche's case 3 in. below the pylorus.

There remain the cases of Bardenheuer, who performed two operations where he united the gall bladder to the small intestine with an elastic suture in the center and a single row of silk sutures around it, expecting that the elastic suture would produce a pressure atrophy, and that a fistula would remain. The first case, impacted gall stones, terminated fatally at the end of four weeks, and the fistula was not yet established, nor had the gall bladder adhered to the intestine, a biliary fistula opening into the peritoneal cavity. The second he writes to Terrier, was done in the same way, with the same result. To this list, taken from Courvoisier, may be added two by Czerny, one of which died of hemorrhage, and the other from exhaustion; one by Helfreich and one by Redus, making up to date, November, 1892, in all thirteen cases of chole-

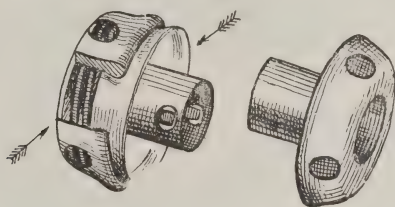


FIGURE 2.—Anastomosis Button.

cystenterostomy of one sitting. Of these six died as the result of operation—Fritzsche's, two of Bardenheuer, two of Czerny, one of Körte, five died as the result of the malignant disease from which they were suffering; and two survived; Terrier's and Courvoisier's making a mortality of forty-six per cent as an immediate result of the operation.

Since November, 1893, I have collected twenty-three cases with eight deaths; mortality thirty-five per cent.

The various operators in commenting on the technique of the operation, all agree that it is one of extreme difficulty; and while the experience of the others was not as trying as that of Winikwarer, it was always most difficult of performance with suture and occupied an hour or upward to complete the operation.

While reading of the great difficulties experienced by the operators mentioned in performing this operation, I realized that the profession was sorely in need of some more simple and perfect means for the approximation of the gall bladder and the intestine; and, after trying several devices, I succeeded in producing and per-

fecting the anastomosis button, which I think fulfills all of the indications, Fig. 2. The button is inserted in the following manner:

An incision is made from the edge of the rib, two inches to the right of, and parallel to, the median line, extending downward three inches. The gall bladder is drawn into the wound, also the duodenum. The duodenum is cleared of its contents by gentle pressure with the fingers. My short intestinal compression forceps are placed upon the duodenum to prevent the escape of gas and fluids after the incision is made. A needle with fifteen inches of silk thread is inserted in the duodenum, directly opposite its mesentery, and at a point near the head of the pancreas. A stitch is taken through the entire wall of bowel, one-third the length of the incision to be made. The needle is again inserted one-third the length of the incision from its outlet, in a line with the first,

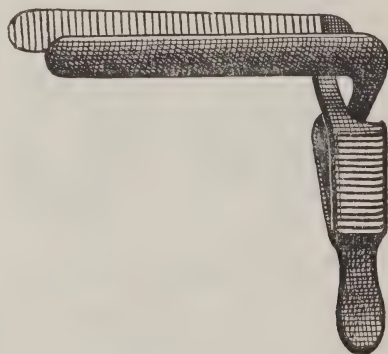


FIGURE 3.—Intestinal Compression Forceps.

and brought out again, embracing the same amount of tissue as the first. A loop three inches long is held here, and the needle is inserted in a similar manner, making two stitches, parallel to the first, in the reverse direction, and one-eighth of an inch from it, coming out at a point near the original insertion of the needle. This forms a running thread, which, when tightened, draws the incised edge of the bowel within the cup of the button. In the gall bladder a similar running thread is inserted. Fig. 4. An incision is now made in the intestine, in length two-thirds of the diameter of the button used. One part of the button is slipped in, the running string tied, and the button held with the forceps. The contents of the gall bladder is withdrawn with an aspirator. An incision is then made in the gall bladder the same length, and between the rows of sutures, the other part of the button is inserted in a similar

manner, and the running string tied. The forceps are removed and each half of button held between the fingers and pressed together, Fig. 5. A sufficient degree of pressure must be used to bring the serous surfaces of the gall bladder and intestine firmly in contact and compress the tissues. The elastic pressure of the spring cup of the button produces a pressure atrophy of the tissue embraced within the cup, and leaves an opening as large as the button, the button dropping into the bowel and being passed through the intestines.

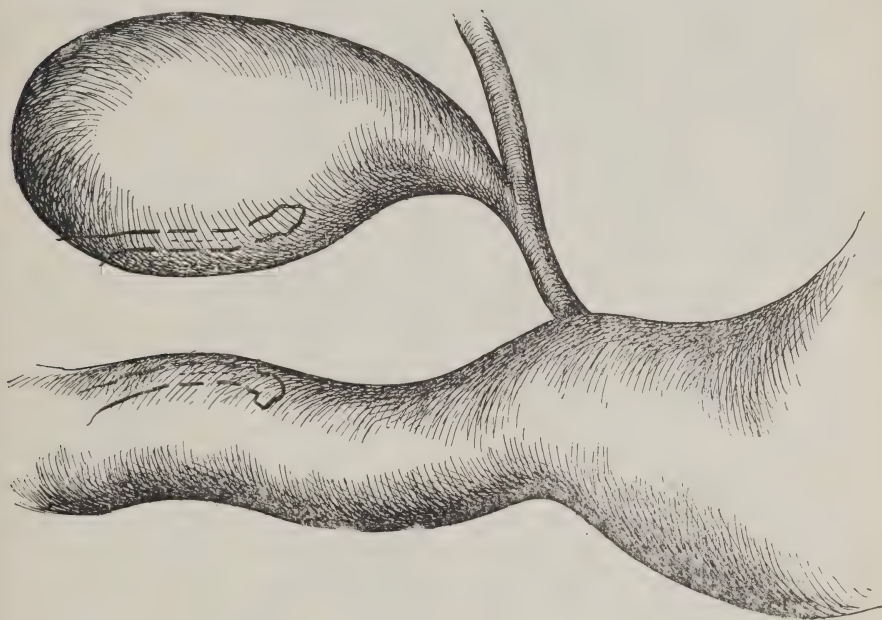


FIGURE 4.—Running threads in position in gall bladder and duodenum.

It takes about as long to describe the operation as to perform it. The time occupied with the first patient on whom I operated was eleven minutes, from the entering of the peritoneal cavity until the closing of it. On dogs I was from eleven to eighteen minutes in performing the operation, the latter time being on the first dog, before I had made the various improvements in the technique and button. The operation is more difficult to perform on the dog than on man, as it is more difficult to bring the gall bladder into the wound.

To show that this operation is one that the busy surgeon will be frequently called upon to perform, now that the technique is

simple, we have only to reflect on the number of cases of chronic jaundice from obstruction of the common gall duct, requiring some operation for relief, and to draw attention to the defects of the operations now in vogue, namely, the unpleasant and sometimes dangerous sequence of cholecystostomy, an external biliary fistula, which may of itself be a menace to life, and require a second

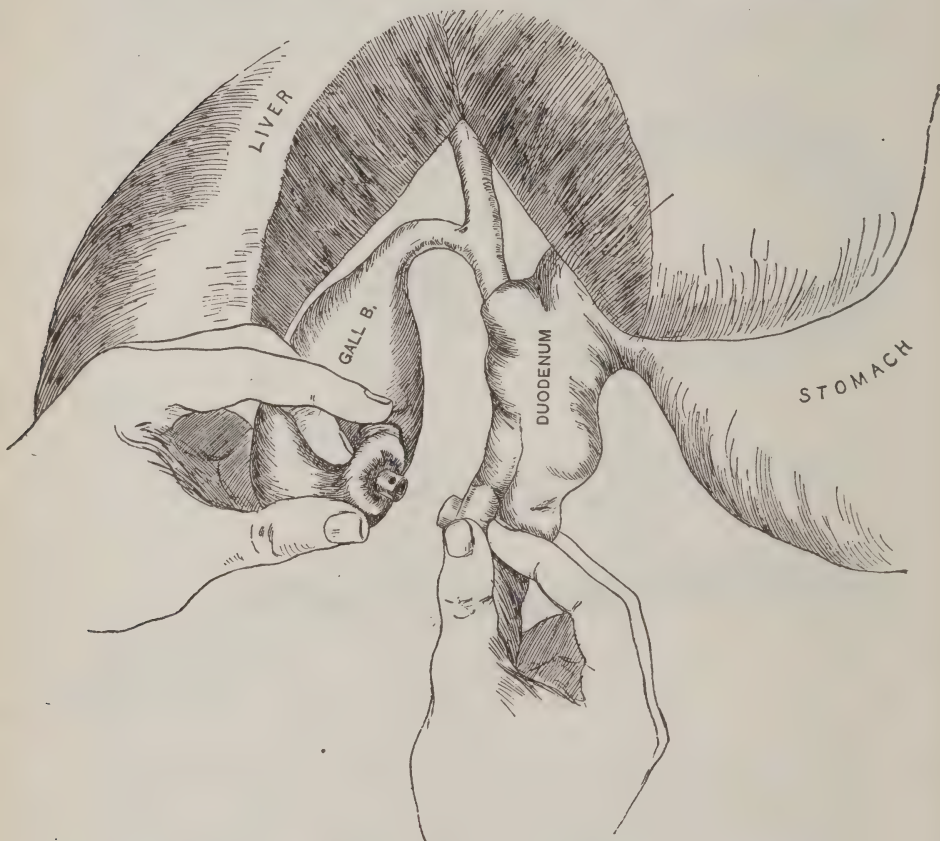


FIGURE 5.—Method of controlling the two halves of button while approximating.

operation even more critical than the first, as is shown in the reports by Courvoisier; also the difficulties and dangers of cholecystectomy and cholecystendysis.

When we consider that in cholecystostomy patients require two operations and that the quantity of bile discharged in each case requires at least two dressings a day for two and one-half months, representing an enormous amount of labor for the

surgeon and attendants and a very protracted and unpleasant convalescence for the patient; also, when we consider that but fifty-one per cent left the hospital with complete recovery, we can see how very much the profession is in need of some better plan of treatment of the lesions of the gall tracts than cholecystostomy by one or two sittings. Take into consideration also the injurious effects of a permanent fistula and we have another very potent reason for abolishing the external opening.

The effect of a permanent fistula of the gall bladder and constant escape of bile secreted, as frequently follows cholecystostomy, is different, depending first, on the quantity of bile that escapes from the opening, and, second, on what proportion is admitted into the intestinal tract. These facts have been lost sight of by many of the surgeons that have operated and had an external fistula remain, which accounts for the great differences of opinion as to the gravity of a biliary fistula. Where the fistula of the gall bladder allows only a portion of the bile to escape, the patient and animal, as in Dastre's experiments, can live without suffering from the loss; that is, they are capable of digesting with a much smaller quantity of bile than they naturally secrete. But if we let the entire quantity of bile escape through a fistula, the patient soon succumbs. This is thoroughly demonstrated by the twelve cases collected by Courvoisier. All patients died where the entire quantity of bile secreted escaped through the fistula, and where a large proportion escaped the patients became emaciated and sick. Therefore a safe means of allowing the bile to reenter the intestines should be welcomed by the surgeon and patient. This operation will produce the same favorable revolution in the surgery of the gall bladder that the intraabdominal treatment of the pedicles did in the treatment of tumors of the uterus and its appendages.

Why should a gall bladder be sutured to the abdominal wall and drained any more than an ovarian cyst should be treated in this manner?

There are reported in all up to December, 1893, twenty-three cases operated on in one sitting all by means of sutures, with a mortality in this operation of thirty-five per cent, or eight deaths in twenty-three cases. From the 11th of June, 1892, up to February 13, 1894, there have been twenty operations of cholecystenterostomy by means of the anastomosis button for the relief of cholelithiasis, with twenty recoveries, 100 per cent, one each by Dr. E. W. Lee, Chicago; Dr. W. J. Mayo, of Rochester, Minnesota; Dr. Fabrique, of Wichita, Kansas; Dr. Alex. H. Ferguson,

Winnipeg, Manitoba; Dr. W. B. Rodgers, Memphis, Tenn.; Dr. Latine, Media, Penn.; Dr. Wm. S. Foster; Dr. J. H. Dunn, Minneapolis, Minnesota; Dr. M. H. Leuken, Chicago; two by Dr. F. S. Hartmann, Chicago, and nine by myself. In all of these cases the result has been a complete restoration to health and no recurrence of symptoms, as will be seen by the histories. I have had all of my cases and those of Drs. Lee and Hartmann visited in the last week, and they are all in excellent health; in not one did the symptoms return as was feared by Dr. Abbe. There was one operation by this method, by myself, in which the lesion was carcinoma of the pancreas. The duodenum was involved in the carcinoma and could not be used in approximation, a loop of the small intestine was drawn into the opening in the abdomen and approximated to the gall bladder with the button, and the patient died at the end of the fourth day. The post-mortem showed the button in position. It was found that the bowel had been twisted upon itself in the operation and a complete obstruction produced the same as in volvulus. This accident is an impossibility if the duodenum is used for the approximation, and I wish to call special attention to its liability, as it is so easily avoided when it is anticipated. There was a cancer in this involving the greater portion of the pancreas, including the duodenum, and the common duct. The period of convalescence was in all cases very short and the patients were not seriously sick immediately after the operation.

This operation is indicated: 1, in all cases where it is desirable to drain the gall bladder for accumulations therein; 2, in all cases of perforation of choledochus into abdominal cavity where the duct must be obliterated by the reparative process; 3, in all cases of cholelithiasis where obstruction of ducts is present, or where the reflex disturbances of digestion are marked; 4, in all cases, of cholecystitis either with or without gall stones; 5, and in all profusely discharging biliary fistulae, either following operations or as sequelae of pathological changes in gall tract.

The cases in which this operation should not be performed are: a, all cases where the gall bladder is too small for the insertion of the button; b, where the adhesions are so extensive that the bowel cannot be brought into contact with the gall bladder without kinking; c, where the ductus cysticus is obliterated, in which cases the operation of cholecystectomy should be performed where there is an absence of adhesions around the gall bladder; d, where we have an enormously enlarged gall bladder with an elongation of the ductus cysticus, and without an obstruction in

the ductus choledochus, in which case cholecystectomy should be performed. If the ductus choledochus be occluded, the gall bladder should be amputated just above the neck, leaving a sufficient portion in which the button can be inserted in the end, and the approximation made to the duodenum in the usual way. By this operation we provide again a channel for the escape of the bile into the intestinal canal.

[TO BE CONCLUDED.]

ON THE PATHOLOGY OF LOCOMOTOR ATAXY.

By SYDNEY KUH, M. D.

PROFESSOR OF NERVOUS DISEASES, CHICAGO POST-GRADUATE MEDICAL SCHOOL. ATTENDING NEUROLOGIST, HOME FOR AGED JEWS. NEUROLOGIST, UNITED HEBREW CHARITIES DISPENSARY.

Locomotor ataxy has found its place in all of our modern textbooks on nervous diseases, among the lesions of the spinal cord. As our knowledge of the pathological changes in tabes became more exact we found that the spinal cord was not by any means the only part of the nervous system affected. Sclerotic lesions of the posterior spinal roots, of the peripheral, spinal and cerebral nerves; occasionally, also, alterations in the nuclei of cerebral nerves were discovered. The substance of the brain, it would appear from these reports, is not, as a rule, diseased.

An attempt to explain the genesis of the symptoms in almost any case of locomotor ataxy will soon convince us that comparatively few of them can be attributed to the spinal cord. We know that such disturbances of the functions of the bladder, rectum and genital organs, as are commonly found in tabes, can be caused by spinal lesions; they do, however, also occur in diseases of cerebral origin.

Westphal's symptom, the disappearance of the knee-jerk seems to be undoubtedly a spinal one. The discoverer of this most important sign was fortunate enough to be able to localize its origin very exactly in the spinal cord, his researches proving that degeneration of a region called by him the "Wurzeleintrittszone," by French authors "Bandelletes externes," was associated with loss of the knee-jerk.

As to the localization of the most important symptom in this disease, the one from which it was named, we know nothing of a positive nature whatsoever. Attempts have been made to explain it by assuming it to be due to sensory disturbances in the joints. All of them have, in my opinion, been decided failures.

If there were a connection between these two symptoms, then every case with marked ataxy ought also to present marked sensory disturbances; any case with slight sensory disturbances, only slight ataxy. This is not the case. I have myself seen a case in Heidelberg with very marked incoördination of the movements of the lower extremities. The man has repeatedly been subjected to a very exact examination within the last few years, which has never revealed any sensory disturbances which could have caused the ataxy. Other cases are on record presenting complete anæsthesia and not a trace of incoördination.

Jendrassik has called attention to the fact, that, leaving locomotor ataxy out of consideration, there is no case on record which proves that ataxy can be caused by a spinal lesion. Some few observations, it is true, are quoted as proofs for this statement, but in some of them the brain was never examined; in others where this was done, cerebral changes were found as well as spinal lesions.

Never to my knowledge did anybody succeed in producing incoördination of movements by experimentally injuring the spinal cord. There are quite a number of cases on record where degeneration of peripheral nerves has been found in atactic subjects. Here, too, it seems that the brain was never examined.

Pitres has published a case of pseudo-tabes with ataxy, in which spinal cord, spinal roots and spinal nerves were found to be intact. Does not this observation clearly demonstrate that we must search for the lesion higher up in the nervous system, in the medulla oblongata, pons or brain?

Glötz's researches have induced him to assume the existence of a center for coördination above the spinal cord. He describes the alterations of motility in his dogs after removal of portions of the brain by comparing the movements to the "Hahnentritt," the step of a cock, a name which is frequently used in Germany in designating the walk of the atactic. Wernicke and Kahler have seen atactic movements in cerebral lesions exactly like those in tabes, and within the last year or so the same was described in a tumor of the frontal lobe, if I am not mistaken, by Bruns.

I have seen two cases of this nature, one some years ago, without, however, being able to give the details to-day. A second one was kindly referred to me for examination by my friend, Dr. Carl Beck, only a short time ago. The patient, J. B., is a waiter, fifty years old. His parents are alive, his mother having had a stroke of apoplexy when seventy years old; the father is said to be

healthy. B. has partaken of stimulants rather freely. In 1870 or 1871 he had a chancre, followed by exanthema. He is married, but has no children. He has been ill for the last two years. At first the toes of the right foot became cold and numb. He then was delirious for about two weeks, and it is impossible to ascertain whether or not he had delirium tremens. At the end of this time he attempted to get up at night, but fell, as both of his legs were paralyzed. The arms were not weakened; his sphincters acted perfectly well; he was not unconscious; there was no anesthesia. After five or six days he was so far improved that he could get around with the assistance of two canes. The left limb soon regained its normal power; the right one, however, caused him a good deal of inconvenience, as he had intense pain in it whenever he tried to stand or walk, but it, too, did not remain paretic, nor did it become rigid. Seven or eight months after this there was a syphilitic ulcer on the right shoulder. Pain began to make its appearance in the right arm and the right upper portion of the trunk, being intensified by every movement. Then the speech became impaired, there were paresthesia in the right arm and movements became clumsy. In the right side of the head he always has a painful sensation of heat. One and a half years ago he had double vision for about four months, which disappeared spontaneously. He never had headaches, did not vomit. The memory is not impaired, nor have the functions of the higher senses suffered.

The right pupil was larger than the left, their reaction to light was lessened on both sides. Marked tremor of the tongue and facial muscles. The speech is thick. Paresis of the right arm, no atrophy. The deep reflexes are less marked on the right than on the left side. Pronounced ataxy of the right arm. Sensibility normal. In the legs there was also ataxy on the right side, the knee-jerk was lessened on both sides. When the patient closes his eyes and places the feet close together, he sways slightly. The abdominal reflexes are absent. The most scrutinizing examination reveals but one additional symptom, but this one alone enables us to reach a diagnosis. It is a choked disk on the left side. Hence this is a case of tumor of the brain with marked ataxy of the right extremities.

One more point deserves to be mentioned in this connection. There are some, although few, cases of locomotor ataxy in which the onset of the incoördination is quite acute. I have been fortunate enough to see two cases of this kind myself. It will hardly

do to attribute a symptom which appears quite suddenly to the chronic, very slowly progressing lesions such as we find in the spinal cord. Of late, attempts have been made to improve the condition of the atactic by systematically practicing the movements, and they have been very successful. Can we learn with our spinal cord? Can practice decrease the number of degenerated fibers in the posterior columns?

A part of the sensory disturbances in locomotor ataxy may readily be explained by lesions of the posterior columns; others, however, it appears to me, are due not to a change in the conducting, but in the perceiving organs. In this connection I would mention the symptoms of allocheiria, polyesthesia and after-pain, all of which are to me only intelligible, if I assume that the function of apperception and not that of mere conduction is impaired.

The symptoms just enumerated have very probably their origin in some part of the nervous system other than the spinal cord. There is another series, no less numerous than this, which is surely due to extra-spinal lesions. Among these, ocular disturbances are both the most important and the most frequent, very often preceding every other sign of illness by years. I am referring to the atrophy of the optic nerve, to ophthalmoplegia interna and externa. Eulenberg has compiled statistics on the frequency of these symptoms comprising sixty-four cases of locomotor ataxy. In these he found strabismus divergens 19x, 4x associated with paralytic ptosis, strabismus convergens 6x, mydriasis 6x, miosis 28x, amblyopia 31x.

Topinard has examined 102 cases of tabes and found amblyopia in fifty-one or exactly fifty per cent. These statistics ought to be considered sufficient proof of the fact, that the ocular disturbances are more than chance complications, that they are very important and constant symptoms, as constant almost as any one found in tabes. I have mentioned the impaired reaction and increased or decreased size of the pupils among the extra-spinal or rather cerebral symptoms, as I am convinced that this is the correct localization for them. Although we know exactly where to search for the so-called cilio-spinal center in the spinal cord, nobody has, to my knowledge, ever found any lesion of this portion in a case of locomotor ataxy. Bramwell is certainly fully justified in attributing the loss of pupillary reaction to light and the decrease in size of the pupil to cerebral changes.

There are quite a number of other symptoms of clearly cere-

bral origin not infrequently found in ataxy. Such as atrophy of cerebral nerves, of the auditory, olfactory, etc., paralysis of accommodation, hemiatrophy of the tongue, paralysis of the sensory or motor portions of the fifth nerve, lightning pains in the head, attacks of vertigo, transient apoplectiform seizures, transient hemiplegia, convulsions in cases which never develop general paralysis, Kahler, various forms of insanity, besides the exceedingly frequent combination with paralytic dementia, drowsiness, headache, hyperemia cerebri, increased irritability. Steinthal has noticed, and Erb confirms his observation, that patients suffering from locomotor ataxy are very frequently remarkably gay and satisfied with their fate. Athetosis has been observed by Cruveilhier, Hammond, Leyden, and Laquer, etc.

If cerebral changes are as common in locomotor ataxy as the frequency of cerebral symptoms would make probable, why are they so rarely described? Who ever attempted to find microscopic lesions in a brain without knowing just where to look for them, will not hesitate to answer this question. It is an undertaking which requires more patience and more time than most observers wish to give to it. The difficult and tedious task has, however, been undertaken in a few cases within the last years. And the results: Just what we must expect if we consider the symptoms. In every case examined diffuse changes in the cerebrum have been discovered. Jendrassik was the first one to undertake these researches. He examined the brain of two individuals who had suffered from locomotor ataxy, but had not presented any symptoms of general paralysis, and in both cases found cerebral lesions. Somewhat later I had occasion to control his results in another case in which the inspection at the time of the post-mortem did not indicate that the brain was diseased. Unfortunately this case was not a pure one, as the microscope revealed the existence of diffuse syphilitic lesions in the membranes of the brain and spinal cord. This was the first time that meningitis syphilitica has been found associated with the typical tabetic degeneration in the posterior columns. Since then a number of similar cases have been published. Kraus has recently communicated the result of his most diligent and exact researches on the pathology of locomotor ataxy. Unfortunately, he, too, like most of his predecessors, has not taken the trouble to make a microscopic examination of the brain, but even so, his work is of the greatest importance to us. He has examined the brain macroscopically thirteen times, and has found changes in the brain

substance proper, the cerebral nerves or the membrane with the naked eye, thirteen times. The lesions discovered were:

Atrophy of the optic nerve,	- - - - -	2 times.
" " olfactory nerve,	- - - - -	1 time.
" " brain,	- - - - -	4 times.

Perhaps also present in a fifth case.

Pachymeningitis,	- - - - -	4 times.
Leptomeningitis,	- - - - -	6 times.
Edema of the brain,	- - - - -	4 times.
Hydrocephalus internus,	- - - - -	2 times.
Multiple Encephalomalacia,	- - - - -	1 time.

A good deal of work still remains to be done, but this much I think can be said to-day: That the brain is diseased in the majority, probably in all cases of locomotor ataxy. That quite a number of the most constant symptoms of this disease are very probably, and some of them surely, not of spinal but of cerebral origin; and that locomotor ataxy is certainly not merely a spinal, but rather a disease of the entire central and peripheral nervous system.

103 STATE STREET.

REPORT OF A CASE OF LAPARO-NEPHRECTOMY FOR MELANO-LIPO-SARCOMA OF THE LEFT KID- NEY, WEIGHING SEVEN POUNDS, IN A SIXTEEN MONTHS OLD CHILD. RECOVERY.

EXHIBITION OF PATIENT AND TUMOR.

By D. A. K. STEELE, M. D., CHICAGO ILL.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AND CLINICAL SURGERY IN THE
COLLEGE OF PHYSICIANS AND SURGEONS.

GENTLEMEN: We present to you to-night a case of unusual interest from a diagnostic and operative standpoint. The first nephrectomy was performed by Simon, of Heidelberg, in 1869; since that time there have been over 300 cases reported, and the operation has been assigned a definite place in legitimate surgical procedures.

From the knowledge gained by a study of the reported cases we are able to draw fair deductions as to when the operation should be performed.

First, In uncomplicated injury of one kidney, where hemorrhage or suppuration threatens life.

Second, In tubercular or calculous pyelitis.

Third, Benign tumors at any age and the sarcomas of adults.

Gross states that nephrectomy is positively contraindicated in the sarcomata of children and in carcinoma at any age, unless the disease is very early diagnosed, and, of course, it would be contraindicated in any stage of advanced tubercular disease.

Butlin and Thornton also take a gloomy view of the value of operations for kidney sarcoma in children, while Koenig is more hopeful and believes that surgery should make such advances as it can. Abbé agrees with Koenig and believes the records can be greatly improved. My own experience leads me to agree with Koenig and Abbé; and to advise nephrectomy in all cases of sarcoma of the kidneys whenever the diagnosis is made, without reference to the age of the patient, provided, however, there are no operative contraindications such as disease of other organs, marked impairment of general health or some such reason.

As to the technique of such an operation surgeons differ, the majority favoring the long incision of Langenbach, or a lateral, curved incision, while Abbé advocates a cross cut. My own preference is for a long, curved incision over the apex of the tumor, from the floating ribs toward the median line.

The diagnosis is usually not a matter of difficulty, the history is one of a rapidly growing tumor in the hypochondriac region extending downward and forward, freely movable, painless, dull on percussion, resistant and not fluctuating. It has to be differentiated from disease of the liver, gall bladder, spleen, pancreas, stomach, ovary and fallopian tube. As a rule an examination of the urine gives negative results.

This little patient, Martin F., a male child, was born in Chicago sixteen months ago, of Bohemian parents. He offers nothing in his family history which shows a predisposition to any disease; on the contrary, however, he gives a history of good health and long-lived families, from the root to the branches of his genealogical tree. His father and mother, grandparents and two sisters, aged 4 and 13 years respectively, are living and well. The parents belong to the poorer class, his father's occupation being that of a plasterer.

The previous history offers that of a natural birth and the best of health up to the onset of pressure symptoms from the rapidly growing tumor. The child fell out of bed and was tipped out of his baby carriage about four months ago without sustaining any apparent injury at the time. About two and a half months ago the first appearance of the tumor was noticed by the mother as a swelling

the size of a small orange in the left hypochondriac region; it grew rapidly and regularly up to the middle of November, when he was taken to the West Side Free Dispensary and from there referred to my Saturday's surgical clinic in the College of Physicians and Surgeons, where I operated on him Nov. 25, doing a left lateral laparo-nephrectomy. Dr. T. A. Davis ably assisted me during the operation. At the time of operation he presented the appearance of a well developed child, rather large for his age, quite fleshy and with every appearance of health, excepting an enormously distended abdomen, which appears to be particularly bulging toward the left. Palpation showed a firmness over this region, and we could readily outline the large, smooth surface of a tumor, irregularly ovoidal in shape and filling the entire left side of the abdominal cavity and extending quite across the median line to the right side.

It was uniformly dull on percussion, freely movable and evidently encapsulated and apparently not very firmly adherent.

It had displaced the abdominal viscera, the colon resonance being advanced to the right of the median line. His pulse and respiration were somewhat accelerated, but this was probably due to some extent at least to the influence of fear. Examination of the urine showed nothing abnormal. A diagnosis of sarcoma of the left kidney was made, and a nephrectomy advised for the following reasons: First, his kidney was affected with an inevitably fatal disease that would terminate the existence of the child within a few months unless relieved by surgical interference.

Second, the tumor was apparently free from adhesions, and therefore we concluded it could be readily and quickly enucleated.

Third, by rapid operating, clamping the pedicle containing the renal vessels and ureter with Billroth forceps while the tumor was being severed, we would lessen the amount of shock and add to his chances of recovery, thereby probably placing one more case on the right side of the mortality table. The operation was performed as follows: Chloroform was the anesthetic used, and the usual preparatory laparotomy toilet made. The abdomen being scrubbed with soap and water, then with ether, and finally with alcohol, and then douched with a weak solution of bichloride. The patient was then placed in the dorsal decubitis position with the head low, the hips well elevated, the body inclined toward the right side, which position was maintained throughout the operation, as by elevation of the tumor we hoped to somewhat lessen the amount of blood contained therein.

I then made a curvilinear lateral abdominal incision from the last rib over the apex of the tumor to near the symphysis pubis with the convexity to the left. The abdominal wall was very much attenuated from stretching and pressure atrophy, so that a slight depth of incision brought us down at once upon the tumor without any extensive opening into the peritoneal cavity. This was due to the adhesions of reflected peritoneal surfaces which were displaced by the ongrowth of the tumor, or else to the stripping of the parietal peritoneum from the same cause. The tumor presented a smooth, regular surface over which ramified several large veins. There were a few adhesions of the pararenal areolar tissue, which were cut between Billroth forceps and the vessels ligated. The descending colon was displaced to the median abdominal region where the paraareolar attachments were quite firmly adherent to the tumor; these were divided and ligated in the same way, when the tumor shelled out quite readily and while held up in my hands Dr. Davis secured the pedicle with a long heavy forcep and the tumor was removed by cutting the pedicle which was subsequently ligated in two parts by transfixing it with a needle armed with heavy silk and the pedicle trimmed short. There was an exceedingly small amount of blood lost during the operation, probably not an ounce and the little patient bore the operation well, suffering but little from the shock.

The operation lasted about thirty minutes. The wound was flushed with sterilized water and closed with interrupted silkworm gut sutures. In the upper and lower angles of the wound I brought out the end of a three inch strip of sterilized, iodoform gauze which rested against the pedicle stump and pressed against and closed the peritoneal surfaces. Over this a regular antiseptic dressing was applied, the wound dusted with boracic acid, covered with three thicknesses of iodoform gauze and over this ten layers of bichloride gauze and a roll of salicylated cotton, the whole being firmly secured by a roller bandage carried around the body. The after treatment of the case was exceedingly simple. Within fifteen minutes after the child was removed from the operating table he had hold of his mother's well-filled breast to which he clung almost constantly for days.

The subsequent history is that of uneventful convalescence. The dressing was changed on the fourth day, at which time the packing was removed. Two days later, at the end of the first week, the stitches were removed and the child was sent home recovered, and now, two months after the operation, remains perfect-

ly free from any signs of recurrent disease and presents a healthy, hearty appearance. Let us now examine the tumor: It weighs seven pounds, or one-third the weight of the child at the time of the operation. It is somewhat irregular in its outline but preserves a uniformly globular form. The sulcus in the upper part corresponds to the encroachment of the upper third of the kidney and the exit of the blood vessels and ureter which have been displaced by the large growth.

From appearances it would seem that the tumor originated in the lower third of the kidney and as it grew it elevated the blood vessels and ureter and by compression and invasion of the remaining portion of the kidney was gradually transformed into fatty and tumor tissue respectively. On section the tumor presents a rather uniform appearance and consistency. The upper part corresponds to a small portion of the kidney cortex. Is softer from fatty degeneration following the extinction of its function from compression of the blood vessels and ureter. The remaining extensive portion is firm and rather dense in consistency. It presents a few rings of connective tissue which encapsulated different portions of the growth at different times during its development. They are made up quite likely of kidney capsules and paraareolar tissue.

Microscopical examination made by Mr. S. J. Sornberger, the Clinical Pathologist in the Pathological Laboratory of the College of Physicians and Surgeons, shows the tumor to be composed of small round cells some of which are pigmented giving it the character of melano-sarcoma. Therefore microscopically and pathologically we may classify it as a melano-lipo-sarcoma of the kidney.

240 WABASH AVENUE.

A CASE OF RENAL CALCULUS.

By J. H. HOELSCHER, M. D., CHICAGO.

Mr. X., married, age thirty-two, has three children; the oldest had an attack of hematuria, coincident with signs of a tubercular lesion in the apex of the left lung.

After a short sojourn at Lookout Mountain, Tenn., she perfectly recovered her former health. A sister died of chronic interstitial nephritis, which was verified by a post-mortem examination. The father, two brothers, and a sister have had attacks of acute articular rheumatism, with acute endocarditis in two instances. An aunt died of pyelonephritis at the age of thirty-five years, which was verified by a post-mortem examination, without finding an apparent cause for the lesion. Mother died of carcinoma of the breast. Beyond this there is no history of any hereditary disease.

The patient's health was good until the year 1883, when he was attacked by bronchitis and enough physical disturbance to justify a change of climate, which resulted in a complete recovery. Dr. Ross, deceased, treated him, and suspected incipient tuberculosis. In the year 1886, the patient noticed a dull, aching pain in the right lumbar region without any concomitant gastric or urinary symptoms.

It was not intense enough to require treatment and disappeared in the course of a few days, only to return after irregular intervals without any apparent cause, or interference with his occupation which was sedentary. This state of affairs continued until a year later, when in 1887, while abroad, he was seized with an acute, sudden, and violent pain, which began in the right lumbar region and radiated down into the thigh, hypogastric region and right testicle. A hypodermic of morphine brought relief.

The physician in attendance did not detect any pathological ingredients in the urine at this time, and diagnosed the case as one of muscular rheumatism of the back. Beyond the occasional and bearable lumbar pain the case now progressed without much variation for a period of two years. In the month of September, 1889, I was called for the first time to see the patient, and found him suffering from an attack of renal colic; the second since the appearance of the first symptoms, or lumbar pain. I took the precaution to examine the first specimens of urine, which were voided after the pain; nothing abnormal was found except an apparent excess of urates.

Inasmuch as a renal calculus may temporarily obstruct the ureter on the affected side for a number of days and thus give rise to a normal appearing urine, I made a microscopic and chemical examination of every specimen of urine during the following seven days, but failed to find any pathological ingredients indicative of renal disease. This attack of renal colic was not accompanied by gastric and bladder symptoms. The dull, aching pain in the right lumbar region continued to annoy the patient, who stated, that it always disappeared at night and invariably returned in the morning, an hour or less after breakfast, in conjunction with gaseous distention of the stomach, nausea and sometimes vomiting of the partly fermented and undigested contents of the stomach; in short, the gastric symptoms were those of a chronic gastric catarrh. This peculiar array of symptoms suggested a possible cause of the lumbar pain and led me to suspect the condition and symptoms peculiar to oxaluria; but examination of the urine for oxalates was negative. I now advised careful dieting and administered remedies to improve the digestion and avoidance of gaseous distention. This treatment relieved gastric disturbances, but the lumbar pain, though less marked than before, still remained. I found that it was always aggravated by active and passive motions, such as riding, walking, rowing a boat, performing on a violin and stooping. Since he gave a history of an abdominal injury, which consisted in being caught between the abutments of a moving bridge, bruising the right lumbar and hypogastric regions. I was led to suspect the presence of a movable or displaced kidney.

Repeated physical examinations of the body in all positions, excluded this lesion from the case, because no abnormal abdominal conditions were found. The disease had now covered a period of six years and during all this time, all those who had treated him as well as myself, failed to find any pathological ingredients in the urine, leaving nothing upon which to base a diagnosis, except the right lumbar pains, two attacks of renal colic and an apparent tenderness in the region of the right kidney.

At this time I suspected the presence of a renal calculus. In the month of October, 1892, I was again called to relieve the patient from a colic and now for the first time in the history of the case, the first two specimens of urine which were passed after the colic and examined with a microscope, contained a rather small quantity of pus cells; no blood corpuscles, casts, concretions or cells from the pelvis of the kidney were found. Daily examinations

of the following specimens of urine, revealed nothing abnormal in quantity or quality.

Dr. J. B. Murphy now saw the case in consultation and agreed to the probable presence of a renal calculus. In accordance with a few favorable reports on the solvent action of piperazine, I administered this remedy to the patient in the month of June, 1893, and ten days after its continued use the patient was seized with a fourth renal colic. This time the urine, upon microscopic examination, contained an appreciable quantity of blood-corpuscles; but no pus cells. Within forty-eight hours after the colic all evidences of renal disturbance had disappeared from the urine, which continued to be normal.

I did not know whether this colic and temporary appearance of blood was due to a calculus, or the piperazine; but I am inclined to believe that both operated as causes, though a prominent specialist attributed the disturbance to the piperazine.

A careful rehearsal of all the symptoms in this case will make it apparent that the diagnosis was a difficult one, and all the more so when we consider that able specialists and physicians overlooked the presence of a renal calculus and variously diagnosed the case as lumbago, gastric disease, rheumatism and obscure nervous disease. Even with the presence of a fairly large renal calculus in the pelvis of the kidney, the urine did not at any time reveal sufficient evidence during a period of seven years, to substantiate a diagnosis of renal calculus. If we recall to mind, that pus in small quantity was present in the urine on but two occasions and blood but once; we are almost justified in throwing it out of consideration, except as an indication of the existence of renal disease; but not of renal calculus. That the pain was not due to a perinephritic abscess could readily be demonstrated; first, by the duration of the case; second, the absence of a distinct enlargement in the right lumbar and hypochondriac regions: third, the absence of chills, fever and other physical disturbances, which generally come hand in hand with suppuration.

It was not a pyelo-nephritis; because, in this lesion the urine almost constantly contains pus and often blood, unless the kidney has become sacculated and periodically discharges its contents into the kidney pelvis and ureter, when it is followed by the appearance of a large quantity of pus in the urine. It was not a tubercular lesion of the kidney, because at no time could tubercle bacilli be detected in the urine; moreover, there was not the repeated and constant presence of pus and blood in the urine, as is generally found

in this lesion. In short, the constant absence of pus, blood, casts concretions and tubercle bacilli, argued strongly against the presence of a suppurative or tubercular lesion in the kidney. The duration of the case, in the absence of enlargement in the region of the kidney, eliminated from the diagnosis cystic and malignant lesions; all the more so when we consider that they are generally accompanied by marked alterations in the quantity of urine, which contains albumen and often pus and blood; then again, they generally are not accompanied by renal colics, except when a echinococcus cyst bursts into the kidney pelvis and the passage of the hooklets causes colic of the ureter, and active or passive motion does not affect the pain so markedly as in renal calculus.

In the absence of the lesions mentioned, I considered that a stricture of the ureter, or an obstruction by pressure from an abdominal tumor might cause the lumbar pain and renal colics; but, whenever this condition is present, the colics, and pathological elements in the urine are far more constant, and in a period of six or seven years the complications and sequelæ would be only too apparent; all these as well as a tumor, were lacking in this case.

A thorough examination of the bladder, prostate gland and urethra did not reveal any pathological conditions, such as, urethral stricture, enlarged prostate, vesical calculus or ulcerations and vesical tumor. I also wish to add that there was no history of gonorrhea.

Having been unable to find a lesion in the genito-urinary organs, I gave my attention to the possible existence of an abdominal aneurism. The symptoms of this disorder, such as a pulsating tumor, a blowing systolic sound, differences between the radial and femoral pulses, gastro-intestinal colics and sometimes a constant boring pain, not aggravated by passive motion and pressure on neighboring nerve trunks and organs, were absent in this case.

Inasmuch as the case had been diagnosed as lumbago, I will say that this affection is accompanied by a pain more general and less localized, most marked when the lumbar muscles are used, not aggravated by passive motion and never accompanied by renal colics. The duration of the case, absence of spinal symptoms, and presence of renal colics threw psoas abscess out of consideration.

Having excluded all these affections I wish to repeat that the right lumbar pain, seven renal colics in as many years and an apparent tenderness in the region of the right kidney, were the only symptoms of a renal calculus in this case; and in view of the

fact that I could not recall a lesion abdominal or external thereto, wherein the pain was so typical and affected by active and passive motions, I made the diagnosis of renal calculus and advised an operation.

The patient now consulted several specialists and practitioners who did not agree with my diagnosis, and this induced him to seek relief in the country, where he lived a careful, quiet, and out-of-door life. After three months he returned unimproved and determined to submit to an operation.

I again examined the urine from day to day, and up to the time set for an operation, found only two specimens of flocculent urine, which contained very few pus cells; otherwise, the urine was normal in quantity and quality. I wish to say that experience has taught me the necessity of properly examining the urine; not only one specimen a day, but every specimen for a number of days, according to the requirements of the case.

This applies with especial force to cases of renal calculus, pyelitis, movable kidney, renal suppurating lesions and obstructions of the ureters.

November 13, '94, the operation of nephro-lithotomy was performed by Dr. J. B. Murphy, in the presence of Dr. Fenger as consultant; Drs. Lee, Hartmann, Riese and myself assisting. The usual incision was made. The opening into the pelvis of the kidneys was so directed, that it avoided severing a rather large vessel in the tissues of the pelvis, for apparent reasons. The calculus was extracted with some difficulty, but without injury to the kidney substance. Iodoform gauze was inserted into the pelvis of the kidney and the whole operation occupied twenty-two minutes of time.

The dressing was soaked with urine the first six days; after this they were dry.

The urine was bloody up to the tenth day, when it resumed its normal color and quantity;

The amount passed in the first twenty-four hours was 12 ozs.							
"	"	"	"	next forty-eight	"	"	83 "
"	"	"	"	"	"	"	53 "
"	"	"	"	"	"	"	85 "
"	"	"	"	"	"	"	103 "

Highest temperature was 100.4° Fah'r. Pulse varied between 70-90 per min. Wound was entirely healed Dec. 31st. Patient expresses himself as feeling perfectly well at the present time.

VENETIAN BUILDING.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. JOHN A. ROBISON, WILLIAM T. THACKERAY, EDMUND J. DOERING
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held at the Schiller Club January 15, 1894.
President McArthur in the chair.

The minutes of the preceding meeting were read and approved.

The Committee on Membership reported favorably on the applications of Drs. H. T. Godfrey, Geneva, Ill., T. Gurney Stubbs, St. Luke's Hospital, R. B. Oleson, Cook Co. Hospital, and Bertha Van Hoosen, 571 E. 43d St., and on motion, the Secretary cast the ballot of the society for their election.

The applications of Drs. Edward H. Lee, T. Jay Robeson and Evert E. Tracy were read and referred to the Committee on Membership.

On motion, the regular order of business was suspended, and on further motion, the sum of \$200 was appropriated from the treasury with which to defray the cost of mailing the RECORDER to members during the year 1894.

Dr. J. B. MURPHY read a paper entitled "Intestinal Surgery," and exhibited specimens.

Dr. J. B. BACON: The experiments I have performed were all done upon the colon and rectum, with an idea of devising a new operation for the relief of rectal strictures. The operations consisted in the anastomosing of the upper with the middle or

lower end of the rectum, and anastomosing of the sigmoid with the different portions of the rectum. A part of these operations was done through an abdominal section, and a part by means of a sacral section. Six dogs were operated upon with the idea of clamping away the septum formed by the approximated gut walls at a subsequent operation, thus subjecting the animal to two operations and risks.

Four dogs survived both operations, and after a sufficient time, about four weeks from the time of the second operation, were killed and the specimens secured. Two of the dogs died after the primary operation, one from shock due to the protrusion of the intestines through the abdominal incision, as the animal had bitten away the sutures; the second dog died from hemorrhage from the sacral artery after a ligature had loosened.

In no case was the button the cause of death, but in all four of the successful cases the buttons passed in from four to nine days, leaving a clean cut opening, with perfectly coupled surfaces, and a narrow circular cicatrix.

I have been greatly pleased with the button, and think it the most valuable and ingenious device that has ever been invented for anastomosing the intestine. Since these experiments, I have successfully anastomosed the upper third of the rectum laterally with the lower third around a specific stricture, in a woman aged forty.

My experience with the button has taught me that every surgeon who uses the button, or any other means, for intestinal anastomosis, should conscientiously and painstakingly perform the operations repeatedly upon the dog, or some lower animal, and learn how to do intestinal work rapidly and securely.

Dr. JACOB FRANK: There is only one remark I wish to make. Being present at an operation for closing a fistula which had existed several months subsequent to the operation of cholecystenterostomy, I noticed, and pointed out to those present, that the inner surface of the gall bladder had taken on the characters of the intestinal mucous membrane. As it will certainly be interesting to know the changes in the mucous membranes after the various anastomoses, I would suggest that in subsequent investigations Dr. Murphy, and others, observe whether the changes that I noticed are common or unique.

Dr. F. BYRON ROBINSON: Dr. Murphy has given reports and these will be confirmed as the years go by. He has a device that is in my opinion superior to any previous device, and I think he

will improve on this yet. This new oblong button he presents to-night for gastro-enterostomy is better than the round one. The benefits from gastro-enterostomy are immense, the patients get along without pain, they do not vomit and they gain in flesh and begin to eat, because the food does not go over the cancerous gut. I do not think that establishing a fistula between the gall bladder and gut is wise. The button is put in the gall bladder, the other part into the gut; the hole is between the gall bladder and the intestine and infection will go into the gall bladder through the fistula and infect the liver itself. Dr. Murphy spoke of the diagnosis; of course that is the great question, and he who does not study the leading symptoms of this condition will never make it. The leading symptoms are not understood except by the man who puts his whole time and attention on them.

Dr. S. C. PLUMMER: I would like to record one observation of my own, corroborative of what Dr. Murphy has said as to distention of the intestine on the distal side of the ligation. I saw the patient before death and noted the amount of abdominal distention which was present. I made a post-mortem examination two hours after death and there was practically no change in the amount. The condition of the intestines in regard to distention was this: above the stricture the intestine was absolutely collapsed; there was no distension whatever above the stricture. Below the stricture the ileum was distended to the diameter of three inches all along. There was no doubt which part was distended, since I traced it clear down to the ileo-cecal valve. Up to that time I had never heard of a case of that sort, because in reports the distention was always above the stricture.

Dr. CARL BECK: I have brought with me a specimen from an operation at which I used the Murphy button, and I would like to present the specimen at this time in connection with Dr. Murphy's paper. It was a case of cancer of the stomach, so extensive that the cancer involved the larger part of the stomach, leaving only a very small portion of the normal surface so that it would have been impossible in this case to use the Murphy button and make a common gastro-enterostomy. I therefore followed the Maydl method, using the Murphy button for a side-to-end anastomosis; the button is still in place. You see that the healing, as far as it was possible in the few days, was of the best kind. The patient died from another carcinoma of the colon descendens, which caused partial obstruction and dilatation previous to death. Another point of interest is that the button could not have passed through the latter

stricture. I thought before making the operation of attaching a string to the button, and instead of allowing it to pass downward to withdraw it through the abdominal fistula, as soon as it was loose. Double cancer is very rare; I think there are only a few cases on record where two cancers of the same kind existed.

DR. F. A. LEUSMAN: I would like to hear Dr. Murphy's views with regard to distention of the bowels with water in cases of obstruction. Suppose a diagnosis is made of obstruction, would distending the bowels with water be a proper thing to do, and for how long a time?

DR. MARY THOMPSON: I did not understand how Dr. Murphy disposes of the mesentery in using this button.

DR. L. L. McARTHUR: I have had occasion to operate for cancerous stenosis of the lower end of the esophagus to reach which I desired to make a gastrostomy for the purpose of curetting and dilating the stricture. To make that gastrostomy I used the button in a somewhat peculiar way. I went through the rectus muscle, leaving its posterior fibrous sheath and the peritoneum; going down behind where I desired to make the stomach adherent to the abdominal wall, and then making the customary incision for the insertion of the button, I inserted one-half of the button in the stomach, and the other half was passed through an aperture in the posterior strong sheath of the rectus muscle. This made a firm anastomosis of the anterior stomach wall with the anterior abdominal wall; in three or four days it was very easy to lift out the button and use that opening both for the purpose of feeding the patient, and for the purpose for which it was made; that is, curetting in one case, and dilating in the second case with the bougie the lower end of the esophagus. Both cases did well. I believe the absence of dragging on stomach wall a decided advantage. A cork was kept in the button until the third day.

I also had an opportunity of using the button in two cases of carcinoma of the rectum in which the Kraske incision was made, but not the typical operation, because instead of suturing both ends of the bowel together, I used the Murphy button to make anastomosis of the rectum. In both cases I secured admirable union of the united ends, but it did not remain permanent throughout the entire circumference. A small fecal fistula formed posteriorly, possibly through some infection of the line of incision at the time the buttons were introduced, or probably from the great traction which occurred upon the scar after the button was removed. In one case three inches, and in the other nearly four

and a half inches of the rectum was removed, and the tension at the line of suture at the junction with the button was very great; it was difficult to bring the button together on account of it.

An idea comes to me that the suggestion of Dr. Robinson in regard to the gall bladder anastomosis with the intestines may have a distinct bearing on this case; because it happened that one of the cases of gall bladder anastomosis that Dr. Murphy made, came into my hands some months afterward at the Michael Reese Hospital. She was suffering with very marked pain beneath the scar, and had persistent high temperature, and the only conclusion that could be made, as she insisted that the button had not yet been past, was that an abscess had formed as a result of pressure from the button; but on making an exploratory incision to find that abscess, I was unable to do so. The anastomosis with the duodenum was perfect, although Dr. Robinson thinks that cannot be made. Later this abscess broke into the pleural cavity, and I opened an empyema. A bronchial perforation also occurred even after the side had been opened, purulent matter being expectorated. It may be possible that a suppurative cholecystitis resulted as an infection from the intestinal tract which may have started a later suppurative process in the liver, then opened through the diaphragm into the pleural cavity.

Dr. J. B. MURPHY: I will first answer Dr. Robinson's question. I used the duodenum in all cases except one in which it was involved in the carcinoma. In that case we used the jejunum, and in bringing it up it was twisted. As to infection of the gall bladder from anastomosis between it and the duodenum, there is no case in which there has been any unpleasant symptoms, except in the one alluded to by Dr. McArthur. I do not believe the empyema or abscess of the lung, occurred from that cause, as it did not appear until six months after, and I think the connection very far fetched. The operation was done in June and the patient was seen in December by Dr. Wittner; up to that time the patient had no manifestations of infection, no fever, the jaundice had not recurred, and by that time the gall bladder was completely obliterated. I think the patient is living yet, the last time I heard from her she was at Jefferson in the almshouse. Now was there any more danger of the infection going along through that contracted gall bladder, in which there was a valve-like opening in the intestine (as it was found in every dog operated upon) than through the normal bladder, assuming you could get an infection in that way? You have

assumed that the gall bladder remains as a large sack, but in fact it rapidly contracts to a tube and so remains.

Exploration and sounding of the duct was not done in many cases. Many of them were jaundiced and if a stone had been located in the duct it would not have been removed. Another thing, the exploration of the duct is not as easy as it seems; and besides if you locate the stone you would not remove it, because the danger of excising the stone in that position is greater than in the operation of cholecystenterostomy.

In answer to the question as to the use of irrigation or injection of the rectum: In all cases of intestinal obstruction I use it, but I do not keep on irrigating until I find the obstruction relieved, as the majority do not yield to it, and in the meantime we get a peritonitis or death. If we have a case of peritonitis the peristalsis stops almost instantly, but in the case of intestinal obstruction the rumbling keeps up until peritonitis occurs. Another thing I wish to emphasize is the temperature; in peritonitis we always find a temperature, even though it is only 99.5° , it is always present; but in intestinal obstruction it is absent; that is important.

In reply to the question of Dr. Thompson, I will say, that I dispose of the mesentery by ligation with one or two ligatures, and in putting in a suture to close the opening in the mesentery, after making end-to-end approximation. The important point in inserting the purse-string suture is to make a top stitch at the mesentery so as to make the peritoneal coat there overlap.

The dilatation is important, that is shown here. You should be careful to take more of the bowel off opposite the mesentery than at the mesenteric side and also include more of the bowel opposite the mesenteric side in the suture. In experiments on dogs we find that the rupture always took place on the convex side of the bowel, and in man it always took place on the mesenteric side of the bowel. In dogs it is strongest on the mesenteric side and in man on the convex side. In injecting air into the intestines we found that long before the intestine ruptured the air passed into the veins.

At the request of Dr. Kuh, the reading of his paper was deferred to the next meeting.

There were in attendance sixty-seven members and visitors. On motion, the Society adjourned.

S. C. PLUMMER,
Secretary pro tempore.

Regular meeting February 5, 1894, at the Schiller Club.

President McARTHUR in the chair.

The minutes of the preceding meeting were read and approved.

The Committee on Membership reported favorably on the applications of Drs. T. Jay Robeson, 2725 Calumet Avenue ; F. A. McGrew, Cook County Hospital; C. H. Graves, 479 South Halsted Street ; Robert Graves, 800 South Halsted Street ; E. H. Lee, 529 West Van Buren Street ; and E. E. Tracy, 82 Maple Street, and on motion the Secretary cast the ballot of the Society for their election.

The applications of Drs. J. O'Neill, Wm. S. Downey, P. R. Welker, E. B. Hutchinson, and F. G. Mason were read and referred to the Committee on Membership.

Dr. Sidney Kuh read a paper, see page 181, entitled,

THE PATHOLOGY OF LOCOMOTOR ATAXIA.

Dr. L. HARRISON METTLER: We have advanced even from Grasset's idea of locomotor ataxia being a disease of the sensory apparatus of the cerebro-spinal nervous system, for there have been cases where the lesion was found in the posterior columns, in the posterior commissure, in the direct cerebellar tract, and as already indicated, in the cerebrum, and even in the anterior horns with the associated atrophy. Whether we should call this purely a spinal disease or even a nervous disease, seems to me a question. The trouble is farther back than that. Many of us seem to regard it as a syphilitic disease, but I believe that syphilis merely debilitates or weakens the nervous system, while other causes bring about locomotor the ataxia.

About two years ago I had the honor of presenting to this society a paper in which I took the stand that locomotor ataxia was a constitutional disease, using that term in a limited sense. I meant to indicate that the source of the trouble was back of the nervous system ; that it was due to something in the blood, and that the condition was a cachexia.

I am sure locomotor ataxia can travel downward as well as upward, and that while the beginning of the trouble is usually in Westphal's region, it is not always there by any means.

Dr. ARCHIBALD CHURCH: It is a pleasure to have heard this paper, and to find that there is a growing opinion that locomotor ataxia is far from the sharply outlined system disease formerly described. The very intimate relations between locomotor ataxia

and the general paralysis of the insane serve to call attention to the diffuse character of these sclerotic diseases and their blending in given cases.

Dr. H. M. BANNISTER: I have seen a number of cases of paresis which commenced as locomotor ataxia and the ataxic symptoms completely disappeared, and the case developed into ordinary general paresis. If the ataxia had been due entirely to the undoubtedly existing spinal lesions, ought it not to have continued? As regards Dr. Mettler's idea of paresis, I believe the two diseases are so closely allied that they are practically the result of the same toxine. Fournier, who has been the advocate of syphilitic origin of locomotor ataxia, has within the last year strongly spoken against the idea of a syphilitic pseudo-paresis which he formerly held, and seems to be coming to the opinion that true parietic dementia is also of syphilitic origin.

Dr. SYDNEY KUH, in closing the discussion said: There are cases of locomotor ataxia in which antisyphilitic treatment is of some use. I have never seen a case in which locomotor ataxia was cured, and I think very few others have, but still this treatment is useful, and we can understand why. I mentioned in my paper that I examined a case some few years ago in which I found syphilitic changes in a man both in the membranes of the spinal cord and the brain. Since then probably a dozen cases of that kind have come under my notice, and in the recent paper on that subject by Dr. Dinckler, the fact is stated that in three successive cases of locomotor ataxia examined at the University of Heidelberg, of which mine was the first, in every one such changes have been found. Indeed these changes do undoubtedly exist very frequently, and I do not see how we can deny the possibility of improvement under antisyphilitic treatment, if we have characteristic syphilitic changes which we know in most cases improve, if the proper treatment is applied. I think the pathological investigations of late years have demonstrated that Erb was perfectly justified in claiming that in a number of cases antisyphilitic treatment was valuable.

Dr. D. A. K. STEELE reported, see page 186,

A CASE OF LAPARO-NEPHRECTOMY AND EXHIBITED THE CHILD AND
TUMOR.

Dr. NICHOLAS SENN: I would like to ask Dr. Steele whether he opened the peritoneal cavity, or whether the operation was extra peritoneal? The paper did not seem quite clear on that point.

It was a beautiful result of what was only recently considered a hopeless condition.

Dr. J. B. MURPHY: This case shows what can be accomplished by a rapid operation under very unfavorable circumstances. Operations for sarcoma in children are very dangerous and the size of the tumor increases the danger. Bland Sutton's report gives something like a mortality of 40 to 60 per cent in his collection of thirty-one to thirty-four cases of sarcoma of the kidney. The recurrence in every case took place within twelve months after the operation. While you may have 60 per cent of immediate recoveries, the ultimate outcome of the case means that the patient will die. Every one of his own cases terminated fatally; the longest time I remember in a child was twelve months. I would say also these cases of sarcoma in the kidney in adults are very unfavorable, although not as unfavorable as that of children. Dr. Steele is to be congratulated on the result and the patient's life will no doubt be prolonged.

Dr. L. L. McARTHUR: I would like to make mention of some very interesting correspondence which I have had during the past three or four weeks with Drs. Bull and Coley, of New York. In June of last year I amputated the left thumb for a melano-sarcoma, removing the axillary glands, which were infiltrated. Six months later a recurrence of the sarcoma occurred, about the middle of forearm along the line of lymphatic channels; this was removed. In two or three weeks another small nodule appeared opposite the biceps muscle near its middle and was removed. Six or eight weeks later, in my absence, the patient went to Dr. Fenger, who had seen the case in consultation prior to amputation; and agreed that the examination both macroscopically and microscopically proved it to be melano-sarcoma. He removed a third return from the forearm and one from the opposite side of the abdomen of a suspicious nature. Finding one on the opposite side of the body upon the abdominal wall he immediately made a fatal prognosis, with life about twelve months. On my return the patient again consulted me and I found a fresh nodule on the forearm and advised its removal. I had spoken to him about the treatment of sarcoma by the erysipelas inoculation. Having this gloomy prognosis before him, he desired before anything further was done to go and see his relatives in Vermont. I advised him to see Dr. Coley and Dr. Bull. I received most favorable reports from the patient, also a letter from Dr. Bull as to the desirability of trying this treatment and advising leaving this last recurrence,

which would serve as an index of whether the treatment would be of advantage or not. Injections of the toxines of the streptococcus of erysipelas mixed with the toxines of bacillus prodigiosus, which seems to intensify the effect of the microorganism, were made in the right arm and in a few hours the left forearm, which was the one affected began to become swollen and chill occurred. After fourteen injections the growth completely disappeared. Not only has this case been successful but they write me of six or seven others in the practice of Dr. Bull and seven or eight in the practice of Dr. Coley, some of which he reports in the Reference Handbook of Medical Sciences Supplement and some in the *American Journal of Medical Sciences* for May. Undoubtedly there is hope yet left for such a child as Dr. Steele presents, for after the main growth has been removed and recurrences have been discovered they can be made to disappear. If one-half the reports are true, and I have no doubt of the entire truth of the statements made to me, the future for the treatment of sarcomata in any part of the body is better than ever before. These toxines may be obtained of B. Buxton, 161 South Paulina street.

DR. D. A. K. STEELE. In answer to Dr. Senn's question, I will say that the peritoneum was opened some three or three and a half inches; there was prolapse of the intestine. This opening was not closed by continuous or interrupted sutures but tamponed by iodoform gauze pressed against it, to save time and thereby prevent shock. The idea of the operation was to do it as rapidly as possible, to save all blood possible and to get the patient out from the anesthetic quickly.

In regard to the remarks of Dr. Murphy as to the mortality of the operation, he has scarcely placed it high enough; it is 50 instead of 40 per cent. With the recurrence of sarcoma we are all sadly familiar. In children the large majority of sarcomata do recur, and perhaps in the time mentioned, although in one of the three cases reported by Abbé of New York a patient about the age of this child was living and well a year and a half after the operation. The cases that remain well longest, or perhaps permanently well, are those operated upon while the sarcoma is perfectly encapsulated. If it is perfectly enucleated there is not much liability of recurrence, but the patients very seldom remain free from the disease. I have had no experience in the use of injections for sarcoma according to the Coley-Bull system and I was very much interested in hearing of the good results obtained. I have kept track of the literature but have not had an opportunity of seeing it used thus

far. Of course this patient is not to be considered as cured of the sarcoma, it is simply a recovery from the operation, the probabilities are entirely in the other direction. If it remains well it will be a fortunate circumstance.

EXHIBITION OF INSTRUMENTS.

Dr. G. FRANK LYDSTON: I simply wish to present a modification of the urethral sound that seems to me of great advantage. I rather hesitate to present a modification of any instrument, because everything is so extensively modified now. Some time ago I happened to be operating upon the cadaver with one of the ordinary monstrosities in the way of urethral sounds, with which all our offices have been supplied. I found the sound was a great deal longer than necessary for the purposes of urethral exploration. I found, moreover, that the sound as ordinarily used impinges upon the anterior wall of the bladder. I had long entertained the idea that a great deal of needless instrumentation of the bladder was performed in urethral strictures. I could never see why a sound of the ordinary length should be introduced into the bladder and the point made to impinge upon the wall of that viscus when the stricture was located at or about the bulbo-membranous junction; but I was not convinced of the accuracy of my criticism until I experimented upon the cadaver. I found a sound of the length of the one which I exhibit was more than long enough for most cases, and in fact in the large proportion of cases is too long; occasionally, however, I struck a case in which this shorter variety was not quite long enough, and it was necessary to push the penis down considerably in order to make the point of the sound enter the deep urethra. I therefore selected a length between the two extremes.

By a little care in the introduction of the instrument, avoiding the extreme depression of the handle and the final flourish in the introduction, a sound of the ordinary length is safe enough. You will find, however, that when the ordinary instrument is introduced and the handle is swept down to about an angle of forty-five degrees, that from two and one-half to four inches of its point is in the bladder. This is entirely unnecessary and harmful. I defy any one to introduce this sound in the manner recommended and illustrated by the diagrams in the text books by sweeping the handle down toward the feet, without impinging the point of the instrument upon the anterior wall of the bladder. I have found in a number of specimens a point of

localized inflammation in the anterior wall of the bladder which I have no doubt was produced by the impinging point of the sound in treatment for stricture; I found that the point at which this pathological change was discoverable corresponded to the point impinged upon by the sound in ordinary instrumentation. Another disadvantage of the long sound as compared with the short variety is that in case there is any obstruction, when a tyro introduces the instrument a great deal more leverage is exerted and more injury done by the long than the short instrument.

I find that by a little modification of the point of the instrument I have increased its utility. In the treatment of stricture by gradual dilatation, when the ordinary sound with tapering point is introduced it is wedged through readily and allows the passage of a larger sound than should be used; the consequence is that the sound is very inaccurate for diagnostic purposes, indeed, useless except perhaps when there is a stricture at the bulbo-membranous junction. By modifying the point of the sound I find that I can obtain to a certain degree the action of the ordinary bulb. With a sound of this form I am able to explore the urethra much more accurately than with the ordinary variety. I do not suggest this form of sound as a substitute for the bulb, but it is much more useful than the ordinary long sound in the treatment of stricture. This acts more on the principle of the bulb; the point being more abrupt enables us to detect obstruction with comparative facility.

Dr. J. H. HOELSCHER reported a

CASE OF RENAL CALCULUS,

and exhibited the specimens. See page 191.

Dr. J. B. MURPHY: Dr. Hoelscher's case is particularly interesting, and having seen considerable of it I desire to lay stress on a few points in that case, viz.: The absence of syphilis, the absence of stone symptoms except pain, and the absence of the usual signs of pyelo-nephritis. From the onset of the attack, and during seven years at no time was pus found, and but few times were pus corpuscles found; at no time was the urine distinctly cloudy. When I saw the case it was absolutely clear, not a fluculus was to be seen. Then the fact that the patient had hemorrhage once. The family history is the most important of all. There is a family history leading all along the line to tuberculosis; relatives on all sides had tubercular depositions of one kind or another, and many of them of the kidney which makes it still more

difficult in making a differential diagnosis. On examination at the time the blood was found the kidney was somewhat sensitive to pressure, which subsided after a few days.

The question comes up, Why were there not more signs? The reason is probably found in the fact that the obstruction occurred but rarely; the stone was large and filled the space of the pelvis of the kidney and was immovable. You will notice in examining the stone that there is a small point which fitted down into the ureter and prevented the escape of urine, but there was no enlargement, no distension of the kidney, and no tumor could be felt. On palpation you could feel the edge of the kidney with the deep inspiration, but nothing more. The operation was one that was easily performed, the posterior surface of the kidney was reached, and the pelvis opened without interfering with the structure of the kidney itself.

The progress of the case subsequently was interesting. Except where you sew up the kidney primarily, it is rare to find such rapid adhesions. On the fourth day the gauze was removed, on the sixth day the urine ceased to escape, and in three weeks the patient left the hospital. I think the reason the union occurred so rapidly was that there was such a small amount of disturbance in the kidney, or no infection and that the ureter was healthy.

Dr. W. L. BAUM: The case of renal calculus, which Dr. Hoelscher has reported reminds me of a case operated upon at the Jefferson College Hospital, in Philadelphia, by the late Professor Gross; in that case the recovery was also very rapid, the patient being exhibited some weeks later at the surgical clinic, and a report rendered one year later showed that there was every reason to believe that the result was a permanent cure.

Dr. J. H. HOELSCHER, in closing the discussion, said: Calculus, in the pelvis of the kidney, can be differentiated from a stricture or obstruction in the ureter when we consider that in renal calculus colics are less frequent and always influenced by active and passive motions, whereas in stricture of the uterer, the colics are more frequent and not affected by active or passive motions; moreover, the pathological changes in the urine are more constant in stricture than in renal calculus.

A CASE OF URETERITIS, WITH EXHIBITION OF PATIENT.

Dr. CARL BECK: This is a case of ureteritis, periureteritis or peritonitis, localized around the left ureter. The young man has the following history: He had gonorrhea eighteen months ago,

which was complicated with epididymitis and cystitis. He was then treated in the county hospital. Though he was relieved of these troubles, he suffered all those eighteen months from daily colicky pains on the left side, localized over a certain point and from this point upward toward the kidney and downward toward the bladder. He felt as if he would have to have a passage every time the pain began, and the attack lasted about two and a half hours; sometimes it did not allow him to sleep. He went from one clinic to another and was treated for cystitis, for gonorrhea, though he had no discharge whatever, and for different troubles. He finally came to me about six months ago, and Dr. Bacon, Dr. Baum and I examined him and made a probable diagnosis of lesion of the ureter, from the following symptoms: The localized pain was always in the direction of the ureter; we could by palpation find a thickened cord on the left side, which seemed to be the ureter; his urine at times was cloudy and at other times very clear. After all other treatment without effect, I proposed to do exploratory incision, and see if there was any pathological change in the ureter. I thought that this colicky pain was due to adhesions of the peritoneum in this locality, which are very common in the female. I made an exploratory incision, assisted by Dr. Wagner, and we found adhesions of one of the coils of the small intestine to the lower part of the ureter, which was as thick as my thumb and a little irregular in shape, and tortuous. I loosened the coil from the ureter and closed the abdomen. That was all that was done, and since this operation, ten weeks ago, he has not had the least pain; so that I consider it a perfect success, inasmuch as he had, previous to the operation, colicky pains every day for several hours. He has gained in weight and every other way.

There is a remarkable feature about this case. Periureteritis or ureteritis is an affection which is very rarely diagnosed and very seldom described. About six months ago James Israel, of Berlin, who has a vast experience in kidney cases, performed nephrectomy for ureteritis. He presented his case to the Berlin Medical Society, and the question was brought up whether he was justified in removing a perfectly healthy kidney on account of ureteritis.

The French have the most experience with this disease, and are the only ones, previous to Israel, who have written anything about ureteritis or periureteritis, and made microscopical examinations of specimens. I have seen two cases of ureteritis on the post-mortem table in our pathological institute, but was never before able to make a diagnosis in the living subject.

Dr. W. L. BAUM. This case was brought to my office by Dr. Beck for consultation and examination. In the absence of any symptoms pointing toward tubercular infection, the absence of pain in the kidney, the pain being confined to the course of the ureter and especially prominent during a passage from the bowels, and owing to the preëxisting gonorrhea and cystitis, we decided to make a cystoscopic examination of the bladder. I used the electro-cyscope made in Berlin after Nitze, and found a concentric hypertrophy of the bladder walls had taken place in consequence of the long continued cystitis. There was a slight protrusion of the opening of the left ureter, showing some discoloration; the flow of urine through this ureter was considerably less than that from the right one, showing that there was either some pressure somewhere along its course, or what seemed more likely, some encroachment of its lumen. Further examination of the patient showed that there was decided thickening of the walls of the ureter which could be felt distinctly with the fingers. This taken into consideration with the condition found during the cystoscopic examination, led us to make a diagnosis of periureteritis.

The operation was decided upon by Dr. Beck after he had exhausted all other means to bring relief to the patient. I do not know of any other treatment which could have been of any utility. The few reported cases of catheterization of the male ureter and the many failures with which I have met in attempting to introduce any instrument into the ureter even with the aid of the electrocystoscope has induced me to regard such a method of treatment as a decided failure. Such a procedure could be successful only in the female ureter. I doubt whether better results could have been obtained than Dr. Beck achieved by the separation of the peritoneal adhesions from the ureter. Although the patient is at present in good health I should consider the progress as doubtful. Should he have a second attack of gonorrhea or ultimately a stricture it would be extremely probable that he would again have an attack of cystitis, for a bladder which has once been so attacked is almost certain to be again infected upon the introduction of the slightest quantity of septic material. The ureter would also be involved with further narrowing of its lumen and the result could hardly be otherwise than serious as regards the patient's life.

Dr. CARL BECK, in closing the discussion, said: I forgot to state that I examined the urine microscopically and there was at no time any hemorrhage and no discharge of pus. In Israel's case

there was hemorrhage and the same colicky pain and the direction of the pain was in the direction of the ureter.

On motion, the society adjourned.

JUNIUS C. HOAG,
Secretary.

THE COOK COUNTY HOSPITAL CLINICAL SOCIETY.

Regular meeting, February 1, 1894.

Dr. PIERCE, Chief of Internes, in the chair.

Minutes of previous meeting read and approved.

Dr. KORTEBEIN presented two cases.

1. Both parents died of some variety of paralysis. Patient had a chancre thirty years ago. In 1889 his trading post on the frontier was burned by the Sioux Indians, and he barely escaped with his life. Later he returned to Germany, and was there cast into prison by the authorities for defaulting in military service when young. These experiences caused him much mental strain. Presently he noticed a trembling in his right arm, then right leg. Constant tremor now present, which is checked when an object is firmly grasped, but soon recommences; drops suddenly into chair when he attempts to sit down; falls after steadily walking faster and faster, whenever he attempts unaided locomotion; a sense of heat at night time, but no rectal nor vesical symptoms.

Diagnosis, paralysis agitans.

2. Family history negative. Patient had smallpox when a child. Eighteen years ago had a right-sided hemiplegia lasting three months. Gradually improving. All venereal history denied. Fairly well up to a few months ago, then suddenly seized with a marked intention tremor, chiefly on right side. Tendon reflexes all increased. Left leg atrophied. Urinary incontinence. No nystagmus.

Diagnosis, diffuse multiple sclerosis of spinal cord.

Dr. WILLIAMS then exhibited two cases.

1. An aortic regurgitation, with Quincke's pulse very well marked. No subjective symptoms referable to heart, however.

2. Also no subjective cardiac symptoms, but a basic systolic murmur heard over aortic valve and aorta most plainly. Patient was very anemic. He considered that the murmur might be hemic.

Adjourned.

Regular meeting, February 15, 1894.

Dr. PIERCE, Chief of Internes, in the chair.

Dr. WILLIAMS presented two cases.

1. Supposed rachitis.

Discussed by Drs. Edwards and Kortebein, both of whom considered it a case of multiple osteomyelitis,

2. A case of progressive ankylosis of the lower jaw.

Dr. KORTEBEIN exhibited specimens from a case of miliary tuberculosis of lungs and spleen, with caseous reteo-peritoneal glands.

Dr. SIPPY showed an ankle joint, recently removed, in which the entire astragalus with the lower portion of the tibia, was caseous and destroyed.

Dr. FINDLEY presented a large tumor of twelve years' standing, recently removed from the inner aspect of a man's thigh. In structure it was a fibro-lipoma, with some sarcomatous tissue in its center.

Adjourned.

R. B. OLESON, }
T. P. FINDLEY, } Secretaries.

THE CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting held at Schiller Building January 9, '94.

Dr. Holmes in chair.

Present Drs. Dodds, Westcott, Stannard, Jones, Colburn, Fisk, Wilder, Prince, Coleman, Wood, Hotz, Gradle, Faith, Fisher, Gardner, Brown and Pinckard.

The Treasurer's report showed a balance of \$11.00 January 1, 1894.

The society elected Dr. F. C. Hotz President; Dr. E. J. Gardner Vice President; Dr. C. P. Pinckard Secretary; and Drs. E. L. Holmes, G. F. Fiske and W. H. Wilder Committee on Membership for ensuing year.

The minutes of the last meeting were read and adopted.

Drs. H. W. Woodruff and H. S. Walker were elected members.

The application of Dr. Norval H. Pierce was referred to the Committee on Membership.

Dr. Wilder showed a case of pulsating exophthalmus. Sam.

S., age thirty-nine, family history good, personal syphilis five years ago. Present trouble began six months ago, with acute conjunctivitis, which got well in about three weeks, but after which he noticed slight pains in the eye. These were followed by redness and swelling which rapidly increased. First seen October 13, '93, when there was great proptosis; marked pulsation of eyeball, increased by leaning forward; also pulsation of large vessels at inner, upper angle of orbit. Eye is always more swollen in morning; heart sounds normal. Marked bruit heard over carotid and over temporal artery as well as over eyeball. Pressure on carotid stops the pulsation and bruit. Pupil fixed, anesthesia of cornea, movements of globe limited. Retinal veins much distended but not pulsating, retina edematous. Such cases are rare, only 117 being reported up to '86. The carotid has been tied in numerous cases with success. No injury in this case. V. O. D. = $\frac{20}{120}$; V. O. S. $\frac{20}{40}$.

Dr. HOTZ had never seen such a typical case. The resistance of globe to pressure is very marked.

Dr. WOOD saw two cases in England, in both of which the bruit was heard over a large area.

Dr. HOLMES had seen four cases, one of which was much benefited by *verat. viride*.

Dr. JONES had an interesting case of injury. Boy was struck by splinter of wood ten weeks ago. No pain or redness followed, and no one was consulted until five weeks later, the parents discovered the boy could not see well with the eye. When seen there was considerable exudation at bottom of anterior chamber. While examining the wound the end of a splinter was discovered, and splinter pulled out. A few days later another was removed, and two more were also removed during the next four weeks, the last of which was one-half inch long. The remarkable part about the case was the fact that at no time has there been any pain or marked redness.

Dr. HOTZ reported case of sympathetic irritation due to irritation from glass eye. W. G., age twenty-four. Left eye removed in 1884. No trouble until three weeks ago, when he bought a new glass eye which was too large. About a week later left socket became tender, and noticed that could not read very long because print blurred. This was followed by pain and tenderness of O. D. which increased and became very acute. On examination left orbit very tender and swollen. O. D. normal appearance externally and internally, but sensitive to pressure; $V = \frac{20}{15}$, but power of

accommodation much diminished. After leaving out the glass eye for two days, swelling and tenderness gone from O. D. and left orbit. At this time, six days later, the accommodation of O. D. has almost entirely returned but not quite.

Dr. WILDER also reported another case of aneurism, this one from injury. Man shot at tip of left mastoid. Facial paralysis followed at once later, loss of V. O. D. with paresis of right arm, and later of leg. Left carotid was tied by Dr. Keen, but without improvement.

On motion, society adjourned.

C. P. PINCKARD, Secretary.

Reviews.

AN AMERICAN TEXT-BOOK OF GYNECOLOGY. Medical and Surgical, for Practitioners and Students. By H. T. BYFORD, M. D., J. M. BALDY, M. D., E. B. CRAGIN, M. D., J. H. ETHERIDGE, M. D., W. GOODELL, M. D., H. A. KELLY, M. D., F. KRUG, M. D., E. E. MONTGOMERY, M. D., W. R. PRYOR, M. D., and G. M. TUTTLE, M. D. Edited by J. M. BALDY, M. D., 713 pages; 360 illustrations in text; 37 colored and half-tone plates. Cloth, \$6.00; Sheep, \$7.00; Philadelphia. W. B. Saunders, 1894.

This book has been written by ten gynecologists who are professors or adjunct professors in various medical schools, or attending or assistant gynecologist in hospitals. The editor has attempted to merge into a harmonious whole the work of these ten authors. The subject of gynecology is completely covered, but occasional repetitions occur which are probably due to the poly-authorship. The value of the work has been greatly increased by the introduction of sections on technique and after treatment in gynecological operations, and genital tuberculosis, subjects which have not heretofore received separate individual consideration in the text-books on gynecology. The illustrations are numerous and with few exceptions excellent. The elementary section on gynecological examinations is unnecessarily lengthened by excerpts from the ancient history of gynecology anent uterine elevators and tents, Ferguson's speculum and the like. No one would recognize the position depicted in Plate IV. as Sims' position. The technique of gynecological operations is described with great care

and accuracy; the section on genital tuberculosis is a valuable contribution to the literature of gynecology, and the consideration of endometritis contains all that is definitely known on that subject. The very obscure ideas of the ordinary practitioner regarding incomplete tears of the so-called perineum, would be elucidated by the general adoption of the term, relaxations of the vaginal outlet, used in this work to describe this variety of laceration. The Emmet and Tait operations for repair of complete rupture of the rectovaginal septum are not mentioned and the operation advocated is less certain in its results and attended by more difficulty than the operations above named. The section on distortions and malpositions is not up to the high standard claimed for the book. It fairly bristles with incompleteness, indefiniteness and inaccuracy. The sections which follow are worthy representatives of American gynecology. The pathology is that of the present day; many of the plates are more clear and accurate than any that have appeared before.

HOLDEN'S MANUAL OF THE DISSECTION OF THE HUMAN BODY.

Edited by JOHN LANGTON, Surgeon to and Lecturer on Anatomy at St. Bartholomew's Hospital, etc. Sixth edition. Revised by A. HEWSON, M. D., Demonstrator of Anatomy Jefferson Medical College, Philadelphia, etc. 803 pages, with 311 illustrations. \$3.00. Philadelphia: P. Blakiston, Son & Co., 1894.

Little is to be said in review of a work which has been so long and so favorably known as Holden's Anatomy. The size of the book has been reduced without loss of its salient features, by putting minor points in smaller type. More than a hundred illustrations have been added. The reviser has appended an anomaly blank for the purpose of recording anatomical anomalies found by the student on the cadaver. The book will well hold its own among the many dissecting manuals now on the market.

THE YEAR BOOK OF TREATMENT FOR 1894. A critical Review for Practitioners of Medicine and Surgery. Cloth, 492 pages. Philadelphia: Lea Brothers & Co. 1894. \$1.50.

The tenth issue of the Year Book of Treatment presents the same excellent features which have characterized the previous volumes, and have made the book both valuable and popular. A section on diseases of children has been added, which has been ably edited by Dr. Dawson Williams, and Dr. Hunter has writ-

ten a comprehensive review of Bacteriology in Relation to Treatment.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.
Third series, Volume the fifteenth, 261 pages; Philadelphia, 1893.

The volume begins with memories of Drs. D. Hayes Agnew and G. C. Shattuck. A number of articles follow, notable among which are those by Drs. Hare and Thornton and Dr. H. C. Wood, on Chloroform Anesthesia, which present radically divergent views on the subject, and Dr. Mills' able paper on neural and spinal affections of puerperal origin.

News Items.

SCOTLAND has 7,709 medical practitioners, of whom twelve are women.

THE TEXAS STATE MEDICAL CONVENTION will meet at Austin, April 4.

DEGREES IN HYGIENE are now conferred by Durham University.

THE TENNESSEE STATE MEDICAL SOCIETY meets on April 10 at Memphis.

Dr. F. J. LUTZ, of St. Louis, has been appointed Surgeon General of Missouri.

Dr. A. R. EDWARDS has opened an office at 2818 Indiana Ave. Telephone South 159.

Dr. FRANK BILLINGS has been on an extensive western trip with P. D. Armour and party.

Dr. GEORGE WAGNER has succeeded Dr. William Porter as editor of the *St. Louis Clinique*.

THE MEDICAL ASSOCIATION OF GEORGIA holds its annual session at Atlanta, April 18, 19 and 20.

Dr. HENRY B. FAVILL announces his office and residence at 138 Pine St. Telephone North 735.

HARVARD MEDICAL SCHOOL has received a bequest of \$50,000 for the endowment of a professorship.

THE AMERICAN GYNECOLOGICAL JOURNAL, of Toledo, has died after a brief but chequered existence.

Dr. NICHOLAS SENN has recently been appointed Surgeon-in-Chief of the Wisconsin Central railroad.

Dr. WILLIS P. KING, of Kansas City, has been appointed Secretary of the Missouri State Board of Health.

JEFFERSON MEDICAL COLLEGE has decided to institute a compulsory four-years' course with the session of 1895-6.

PROF. E. E. ROCKWOOD, of the Iowa State University, has been elected chemist to the Iowa State Board of Health.

THE EIGHTH INTERNATIONAL CONGRESS OF OPHTHALMOLOGY is to be held at Edinburgh during the coming August.

Dr. J. FRANK and daughter sailed for Geneva on the steamship Columbia March 10, en route for Rome and the congress.

DR. J. C. ARMENTROUT, professor of physiology, histology and nervous diseases in Keokuk Medical College, died February 7.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS will be held in Washington, D. C., May 29, 30, 31, and June 1, 1894.

FOR RENT. Accommodation for forenoon office hours can be had at the office of Drs. Lee & Murphy, in the Venetian building.

THE TRI-STATE MEDICAL SOCIETY of Iowa, Illinois and Missouri will hold its regular semi-annual session, April 3 and 4, at Kansas City, Mo.

PROFESSOR LUIGI LUCIANI, of Florence, has been appointed to the chair of physiology in the University of Rome, to succeed Professor Moleschott.

Dr. HERBERT JUDD, of Galesburg, Illinois, a surgeon of eminence, and for many years surgeon of the Burlington and Santa Fé railroad, died January 11.

THE RIBERI PRIZE has been awarded to Dr. Camille Galgi, of Pavia, for an essay on malarial fever. The value of the prize is 20,000 lire, or about \$4,000.

THE FOURTH ANNUAL MEETING of The Association of Military Surgeons of the United States, will be held in Washington, D. C., May 1, 2, and 3, 1894.

DEATHS FROM CARBOLIC ACID IN ENGLAND, between February, 1892, and November, 1893, numbered two hundred and thirty. One hundred and seventy-four were suicidal.

SEVENTY-ONE MEDICAL COLLEGES will adopt a four years' compulsory course if all the colleges in the Association of American Medical Colleges remain true to their trust.

THE SMALLPOX HOSPITAL has experienced a change of physicians. Dr. Burson has resigned and Dr. H. S. King, a convalescent patient, is taking his place for the present.

DR. WOLFRED NELSON, of New York, has been elected a Fellow of the Royal Geographical Society, of London, in recognition of his literary labors on Climatology and Physical Geography.

THE GERMAN EMPEROR has conferred on Prof. Henoch, the author of the classical work on children's diseases, the Order of the Red Eagle, Second Class, with the crown and oak leaves.

DR. FRANK P. NORBURY moved from Jacksonville, Ill., to St. Louis on March 1, to assume editorial management of the *Medical Fortnightly*, with which he has been associated for some time.

LEPROSY IN ICELAND is to be studied by Drs. Ehlers and Ulrich, of Copenhagen, who have been detailed by the Danish government to investigate the extent to which the disease still prevails in that island.

AN ITALIAN PHYSICIAN has recently been fined, sentenced to twenty days imprisonment, and debarred from the practice of his profession for three months on account of refusal to visit cholera patients.

FOR RENT.—Dr. E. J. Kuh, Suite 1104 Columbus Memorial building, will sublet a consultation room for the morning and afternoon; services of office girl and use of private telephone included.

FOR RENT.—Drs. Reed and Van Hook, of 1104 Columbus Memorial building, will sublet a consultation room for morning and afternoon hours, with services of office girl, and use of private telephone.

A BILL FOR THE PREVENTION OF BLINDNESS has been introduced before the State Legislature of Ohio, which provides a penalty for failure to report sore eyes in an infant within two weeks after birth.

THE FIRST WOMAN to obtain a physician's diploma and license to practice medicine in Turkey is Dr. Mary P. Eddy, a graduate of the New York Woman's Medical College. Her field of labor is to be in Syria.

DR. J. A. CLOSE has been elected Dean of the St. Louis College of Physicians and Surgeons vice Dr. A. S. Barnes, resigned; and Dr. George H. Thompson succeeds Dr. Geo. W. Cole as Secretary of the institution.

THE SUPERVISING SURGEON GENERAL of the United States Marine Hospital service announces that a board of medical officers will meet in Washington on April 16, to examine candidates for assistant surgeon in that service.

THE PENNSYLVANIA RAILROAD COMPANY has sent out a special train with two physicians, who are to go over the whole line to Chicago, and vaccinate at each station all the switchmen, sectionmen, gatekeepers, and other employes.

THE COLUMBIA CHARITY DISPENSARY has opened at its new location, 2234 Wentworth avenue. Dr. Ritter is the Medical Superintendent. The new features of the institution are free beds, trained nurses and an obstetrical department.

Dr. J. H. FORD, of Wabash, Indiana, has been appointed surgeon-in-chief of the "Big Four" railroad. It is the intention of the company to establish a hospital system on their line similar to that of the Missouri Pacific and Wabash Railroads.

DR. GEORGE N. KREIDER, of Springfield, Ill., Treasurer of the Illinois State Medical Society, was married, February 18, to Miss Pasfield, daughter of Dr. Geo. Pasfield, of Springfield. Dr. and Mrs. Kreider sailed for the Mediterranean three days later.

Dr. FRANCISCO ALONZO RUBIS, of Madrid, Professor of Obstetric Medicine in the University of Madrid, President of the Royal Council of Public Health, and of the Royal Academy of Medicine, and Perpetual President of the Spanish Gynecological Society, is dead.

LIGHTNING OPERATING is again being advertised. The latest report is from Kansas City. Ovariectomy and hysterorrhaphy in five and three-fourths minutes. The operator prefaced the operation by stating his intention to "break the record." The ultimate result of the operation is not given.

Dr E. L. TRUDEAU, of Saranac Lake, has been given \$10,000 with which to build and equip a laboratory for the experimental study of tuberculosis. He has, as well, a fund of \$1,500 per year for carrying on the work. With such a scientist as Trudeau at the head we shall expect tangible additions to our knowledge of this most important subject.

THE SMALLPOX HOSPITAL gave rise to some contention last month on the allegations of Father Heldman, who accused the resident physician, Dr. Burson, with inefficiency, and made sweeping charges all around. Matters have, however, been straightened out to the satisfaction of all concerned. It seems to have been a tempest in a teapot, a strife between nurses and physician.

SURGEONS WHO SERVED IN THE CONFEDERATE SERVICE naturally resent the recent action of the United States Commissioner of Pensions who has ruled that no ex-confederate physician is eligible for appointment as a pension surgeon. They properly point out that they were noncombatants and that this ruling is unjust to a profession which exercised the high function of medicine to friend and foe alike.

THE PATHOLOGICAL SOCIETY OF CHICAGO has been granted quarters in the Rush Medical College Laboratory Building, and a pathological museum under a curator will be organized from the specimens presented at the society meetings, by which it is hoped to form a nucleus for a pathological museum that, when Chicago has a proper medical home, may be placed at the disposal of the profession at large.

A NEW JOURNAL, under the title of *The Bulletin of the Electro-Therapeutical Laboratory* of the University of Michigan, has appeared, its purpose being to advocate better methods of instruction, to publish explanations and tests of apparatus, with experiments, and all questions pertaining to the topic. Subscription price \$1 a year. The *Bulletin* will be issued quarterly by the Register Publishing Co., at Ann Arbor, Mich.

THE PRACTITIONERS' CLUB discussed the Medical Department of the Newberry Library at its dinner, February 9. Dr. Senn presided and, in the absence of Dr. Poole, Dr. Wise, superintendent of the department, represented the library. Dr. Senn gave an account of his acquisition of the Senn collection which he has given the library, and Drs. E. Ingals, G. W. Webster, J. H. Hollister, John B. Hamilton and others joined in the discussion.

THE WEATHER IN CHICAGO during February presented a maximum temperature of 48° on the 27th, a lowest temperature of 4° below zero on the 21st; greatest daily range of 23° on the 5th. The prevailing direction of the wind was from the southwest, with a maximum velocity of eighty-four miles on the 12th from the northeast. There was a total precipitation of 2.18 inches. There were eleven clear days, six partly cloudy days and eleven cloudy days.

THE AMERICAN GYNECOLOGICAL SOCIETY will hold its annual meeting in Washington, May 29, 30 and 31. The morning sessions are to be devoted to the discussion of extirpation of the uterus in disease of the adnexa; the management of face presentations, and rupture of the uterus, surgical versus expectant treatment. The afternoon of May 31, will be occupied by a special discussion before the congress, under the direction of the society, upon "The Conservative Surgery of the Female Pelvic Organs." Referee, Dr. Wm. M. Polk; co-referee, Dr. Wm. Goodell.

THE FEBRUARY DEATH RATE OF CHICAGO was 11.29 per annum per thousand. During last month 1,501 deaths occurred of which 55 were from smallpox, 45 from diphtheria, 23 from scarlet fever, 26 from typhoid fever, 19 from cerebro-spinal fever, 38 from cancer, 152 from phthisis pulmonalis, 118 from pneumonia, 74 from bronchitis, 74 were killed by railroad, and 2 by street car accidents; 10 died from surgical shock, 3 were murdered and 18 committed suicide. 419 were under one year, and 604 under five years of age. During the month 80 premature birth and 128 still-births were reported. 34,000 vaccine points were used by the health department during February.

PAMPHLETS RECEIVED.

GOLD THERAPY. By E. A. WOOD, M. D. E. M. Johnson & Co., New York.

ANNUAL REPORT OF THE WALNUT LODGE HOSPITAL, AT HARTFORD, CONN. January, 1894.

ON THE TREATMENT OF CHLOROSIS. By F. FORCHHEIMER, M. D. *Therapeutic Gazette*, November 15, 1893.

THE DEFLECTED SEPTUM AND ITS REPAIR. By J. HOMER COULTER, M. D. Trans. Ill. State Med. Soc., 1893.

RECENT OBSERVATIONS IN COLOTOMY, WITH CASES IN LONDON. By J. RAWSON PENNINGTON, M. D. *Jour. Am. Med. Ass'n.*, November 11, 1893.

ANTISEPTIC THERAPEUTICS. By E. L. TROUESSART, M. D. Translated by E. P. HURD, M. D. Geo. S. Davis, 1893. In two volumes, 25c each.

IN MEMORIAM. Dr. CHARLES WARRINGTON EARLE. Minutes of a special meeting of the Chicago Pathological Society, held November 24, 1893.

ENTERORRHAPHY; ITS HISTORY, TECHNIQUE AND PRESENT STATUS. By F. SENN, M. D. Ph. D., LL. D. *Journ. Am. Med. Ass'n.*, August 12, 1893.

THE ABSORPTION OF IMMATURE CATARACT, WITH RESTORATION OF VISION. By J. HOBART EGBERT, A. M., M. D., Ph.D. *Notes on New Remedies*, December, 1893.

THE MODERN CLIMATIC TREATMENT OF INVALIDS WITH PULMONARY CONSUMPTION, IN SOUTHERN CALIFORNIA. By P. C. REDMOND, M. D. Geo. S. Davis, Detroit, 1893. 25c.

OPERATION FOR THE CORRECTION OF DEFORMITY OF THE WRIST CAUSED BY SHORTENING OF THE RADIUS AFTER FRACTURE. *Med. Record*, January 6, 1894. By E. S. GOODHUE, M. D.

INTRODUCTORY LECTURE OF THE THIRTY-FIFTH COURSE OF INSTRUCTION IN THE NORTHWESTERN UNIVERSITY MEDICAL COLLEGE. By N. S. DAVIS, M. D. CHICAGO MEDICAL RECORDER, October, 1893.

UTERINE FIBROIDS AND HEMORRHAGE TREATED BY MY NEW OPERATION OF VAGINAL LIGATION OF THE BASE OF THE BROAD LIGAMENT OF THE UTERUS. By FRANKLIN H. MARTIN, M. D. *North Am. Pract.*, January, 1894.

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Original Articles.

SPINA BIFIDA TO BE TREATED AS A HERNIA.

By WELLER VAN HOOK, M. D., CHICAGO.

The gloomy statistics of Demme who records the deaths of thirty-two untreated cases of spina bifida within the first two years of life, and of others who have seen many cases, showing conclusively that these patients almost all die very early, and the reports of the number of deaths from this cause in England, in the year 1882 amounting in all to 649, have long since affirmatively answered forever the question of the legitimacy of operation in spina bifida even at great hazard. The indications for interference as to time and as to so-called selection of cases and the method of operating are still unsettled questions.

Antiseptic surgery, with open accurate methods, has long since displaced many of the dangerous and uncertain methods in vogue prior to 1870. How strange that in the treatment of this malformation the method introduced and practiced by Brainard by the injection of iodine into a sac which usually contains nervous elements and often the cord, excellent as it was in its day, should still find favor in professional opinion by the side of open procedures which enable the operator to accurately protect and preserve the spinal marrow and its offshoots if contained in the tumefaction, to properly curtail the sac, to adequately close the opening in the spinal meninges and if desired, to close and buttress the defect in the bony canal.

In England so recently as 1887, Morton has written a monograph on the iodine injection treatment claiming a mortality of only 20.71 per cent. This report would seem to aid in sustaining in

England the conservative opinion of the London Clinical Society's committee who in 1885 concluded that notwithstanding many failures, the plan of treatment by injection was the best with which they were acquainted, and the only one which they felt justified in recommending. In spite of the example set in Great Britain by the excellent work of Mayo Robson and others using the open method, the injection of iodine still finds many advocates among the English, as can be seen in the fact that of fifteen cases treated by injection in Powers' collection of 1893, ten were recorded in British publications and three in British colonial journals. Maunsell Moullin's opinion, as stated in 1891, doubtless represented a large number of English surgeons. He says, "As it is practically impossible to prove that the cord is not involved in the sac, this operation, excision, should rarely be undertaken." This statement would seem to be an argument for and not against the open method.

The largest number of cases treated by the open method, the most important pathological studies, and the most valuable operative suggestions have come from German-speaking surgeons, who must be considered in favor of the open treatment. Italian surgeons are reporting cases treated by the elastic ligature and by injection, together with a few excisions. France has many advocates of the open method, numbering some of the most brilliant and thoughtful surgeons of that republic. In our own country numerous cases of recovery by excision are on record, together with favorable opinions by Powers, John B. Roberts who advocates osteoplasty if possible, Bradford and others. A few cases of operation by injection have been recently reported by American surgeons. Dr. J. W. White has recently, 1892, upheld the conclusion of the London Clinical Society with reference to the practice of the injection method. Dr. A. T. Cabot reported two cases of excision, with one death. He decides against the open method, and, without citing specific references to recorded professional opinion, stated that the conclusion of the London Clinical Society was justified by the facts as they stood at that time, August, 1892.

With this opinion it seems to me proper to take decided issue, since it doubtless does represent the conclusion of many excellent observers, though one may well be permitted to doubt the accuracy of Dr. White's statement that the conclusion of the London Clinical Society's committee represented the opinion held by most surgeons of the present day.

The advantages of the injection method are:

1. That the method is simple, easy of application and is available in remote places under relatively unfavorable circumstances.

2. That the percentage of cases cured is good—Morton claiming a mortality of but 20.71 per cent in twenty-nine cases.

The objections to the method are numerous, and to my mind insurmountable :

1. The method is a blind one, not permitting the operator to exercise any discretion as to the disposal of nerve elements, but compelling him to bring about obliteration of the sac by the rude method of scar formation and contraction.

2. Many deaths take place immediately from the entrance of the irritant fluid into the spinal canal.

3. No adequate protection can be given to the contents of the spinal canal by the shriveled sac and its contents. The mere obliteration of the sac is not the sole object of interference.

For the open method the following facts may be plead:

1. The operator may preserve and restore to the spinal canal the errant nerve elements.

2. The meninges can at once be accurately closed under painstaking inspection by sutures, thereby protecting the spinal cord immediately.

3. The spinal canal can, if desired, be permanently closed by plastic methods, rendering recurrence impossible, and giving protection to the spinal marrow.

Furthermore, the statistics of the two methods of operating are, so far, slightly more favorable to the open method. Hildebrand sums up the recoveries from injection at 66 per cent; while his statistics of the open method give 73.5 per cent of recoveries. These statistics are, as Hildebrand admits, fallacious, inasmuch as they do not include all the cases of all the operators. A better comparison of the two methods will be found in comparison of the figures given by the operators who have had the greatest experience in the two procedures. Morton's own cases of injection give a percentage of recoveries of 65.5 per cent; while König and Bayer each had 76.9 per cent of recoveries. This result, it is true, is not far from the general result obtained by adding all the statistics together.

In the light of the recent investigations of Hildebrand presented before the Congress of the German Society for Surgery, at

Berlin, in April, 1893, the indiscriminate injection of iodine into spinae bifidae is even more unjustifiable than ever before. Hildebrand, with a view to increasing the accuracy of surgical interference, has added the results obtained by the examination of thirty specimens to the anatomical data already collected by Virchow, Koch, Marchand, and Von Recklinghausen. He substantiates much of Von Recklinghausen's work, but does not agree that in all cases the dura mater is defective. He finds examples of defects of all grades of severity from rhachischisis posterior, in which all the coverings of the cord are defective, to simple meningocele, in which the dura mater is still intact.

To quote from his very valuable work "The severest form is rhachischisis posterior, there everything is split, the vertebrae, the membranes of the cord, the cord itself. The membranes separate from one another passing directly into the subcutaneous tissue, the spinal cord so far as it is still present, into the epidermis."

"Exactly the same relations are presented by myelocele, only the pia mater is pushed out from behind with the spinal cord in sac form by a hydrops of the arachnoid. This hydrops lies either between the pia and the arachnoid, and then the spinal cord and nerves pass freely through the sac to or from the apex of the sac, or between the two ventral plates of the arachnoid, then they run in the sac-wall between the pia on the outside and the arachnoid within. The sac is only covered by normal skin at its base."

"Now follows the form in which the spinal cord and the soft membranes are closed, dura and bone, however, are defective. In this form by a hydrops in the central canal, or perhaps even a process like syringomyelia, a sac-like dilation of the spinal cord itself is produced with the pia and arachnoid.

"In this way we obtain myelocystocele. Through the cavity no nerves pass. The innermost sac-wall consists of spinal cord substance which here and there is completely lacking as a result of thinning, and upon this, I have been able to demonstrate also only here and there a cylindrical epithelium.

"Or there arises a hydrops behind, between the arachnoid and pia, so that we obtain a projection of the arachnoid, a meningocele whose wall is formed simply of arachnoid. Through the cavity nerves can pass. In both cases the sac is for the most part, at least in the beginning, covered by natural looking skin.

"Finally, the dura may also be closed, with only the bone defective. If then a hydrops arises between the arachnoid and

pia, or in the arachnoid, there is a projection of the arachnoid and the dura, a further form of meningocele.

* * * * * * *

Upon occasion one finds also a third form of meningocele where the dura alone forms the sac wall. Where, therefore, the fluid lies in the subdural space, it is the form which Marchand regards as the rule."

The belief which Hildebrand entertains in reference to the occasional formation of the external sac-wall by dura mater, is disputed by Dr. G. Muscatello, working in the laboratory of Von Recklinghausen. The membrane which Hildebrand regarded as dura, Muscatello considers to be the subcutaneous connective tissue of the dorsum. We have yet to hear the answer of Hildebrand to this objection.

The indications for operative interference are still under discussion. A few cases require no interference—those perhaps in which the sac is small and strong and is covered by strong normal skin while the opening into the spinal canal is regarded as being minute, (Hildebrand). Yet even these cases are in some danger of having the sacs ruptured by violence at an unforeseen time, with infection of the meninges. A few operators condemn interference in the graver forms of spina bifida, especially in rachischisis, on the ground that the defect in the bones is so large as to be unmanageable, and that the condition of the cord is irreparable. In many instances this bone defect can be repaired by osteoplastic methods. Hildebrand strongly condemns operations upon all cases of spina bifida in which extensive paralytic complications exist, particularly in the presence of other deformities. He thinks we should not prolong life in these instances, but should allow the sac to rupture as soon as it will, in order to free society of the burden of caring for these unfortunates. We are reminded by this cold-blooded statement of the case that Spartan orthopedics were much simpler, being reduced to the easy requirement of finding an old well or cavern into which the deformed child was thrown to die. In the present state of sociology, to say nothing of conscience, we may say that there is no more justification for the withholding of a surgical operation which will prolong life, than for the denial of medicinal agents.

As to the propriety of operating in cases lying between these pathological extremes, the very simple and the very complicated forms, there can at present be no doubt. It is agreed that unless danger of rupture of the sac exists, operations should be deferred until the child is old enough to bear the surgical interference with-

out undue shock. Nevertheless the tenderest period of infancy is no absolute contraindication, as cases have made excellent recoveries after operations performed within a few hours after birth.

Bayer's conclusions touch upon the time of operation quite significantly. He says :

1. The operation for spina bifida sacralis and lumbo-sacralis is immediately and pressingly indicated in all those cases which are born with ruptured sacs, or whose sac ruptures intrapartum or bears a zona medullo-vasculosa and which do not show paralyses and are not complicated with severe malformations, except clubfeet. In these cases the nervous elements of the sac are to be carefully guarded.

2. It is also to be undertaken in cases which show paralysis as soon as the child is strongly developed, and danger of infection threatens from the side of the exposed medullary constituents of the sac.

3. In cases which bear a sac closed and covered by normal skin the most delicate period of infancy is to be passed by as an operation period. Still, the operation, if the child is otherwise healthy, is not to be put off too long, for fear of traumatic injuries unavoidably acting upon the sac.

METHODS OF OPERATING.

There are a number of variations in the manner of performing the operation by the open method. They may be included under four chief heads :

1. Simple excision of the superfluous sac-wall, with suture of the remainder of the meninges and of the skin.

2. The method of Mayo Robson and of Bayer ; the same as the first method together with suture of the muscles or fasciae over the defect.

3. Osteoplastic or chondroplastic methods, (Senenko, Botroff.)

4. A combination of excision with suture of the sac, plastic operation upon the muscles or fasciae and osteoplasty.

The choice between these methods will obviously depend upon the circumstances of the individual case. A permanent osseous closure of the defect in the spinal arches is a desideratum which none can deny. Yet it cannot be said that it is an absolute or even a relative necessity, since the recoveries recorded have been permanent, even when the simplest methods were used. At the same time, in patients able to bear an operation slightly prolonged,

one of the osteoplastic methods should be used, either by the incision and bending down of the unclosed laminae, or by the use of a periosteum and bone graft from the ilium, (Senenko,) or ribs, (Botroff,) supplied with a nutrient flap. The ease and rapidity of application of the Robson and Bayer plastic methods by the use of muscle or fascia, and the permanent security afforded by it to the spinal canal, make it an imperative duty to use one of them whenever justified by the strength of the patient. In favorable cases after the bony defect has been made good, the flaps of fascia should be brought over as an additional protection.

Heteroplastic methods are to be absolutely condemned, *a priori*. The attempt of Mayo Robson to implant a piece of rabbit's bone resulted in failure. The demonstration by Barth that pieces of bone implanted in defects of bone serve only as convenient supporting framework for the growth of new bone, and do not themselves live and grow, is proof positive that heteroplastic methods must fail when any important defect of the spinal arches is to be made good. The bone used should be raised with its periosteum, and a nutrient pedicle supplied after the Wagner-Wolf method.

The treatment of the nervous structures found in the sac is a matter of the utmost importance. Koch and Bayer have perfected to a high degree the methods of dealing with them. The first principle of treatment in this respect is that no nerve elements are to be sacrificed.

To accomplish this end the anatomy of the case must be studied by an examination of the contents of the sac through an incision made at the side, which is most frequently free of nerve tissue. If nerve trunks are found they are carefully removed from the wall of the sac and replaced in the spinal canal where they are confined by suturing the sac-wall over the defect. If an area vasculo-medullosa is present representing the spinal cord, atrophied and spread out upon the apex of the sac, the area with a portion of the membrane is dissected out by an oval incision and together with any nerves attached to it, is replaced in the spinal canal. In cases of myelocoele the wall of the sac bearing the cord relics is returned in its entirety to the spinal canal.

Operations by this method lead to no diminution of function on account of sacrificed nerve tissue. But on the other hand, surgeons must not expect that functions absent before the operation will be restored by this procedure, since no rearrangement of the tissues present can make amends for the absence of a part of the spinal marrow.

The following case illustrates the method of Bayer :

C., a girl aged five months, patient of Dr. S. W. Burson, was seen in January, 1894. Family history is good so far as disease and congenital deformities are concerned. Patient has had no illness at any time, is well nourished and hearty. The mother says the presentation at birth was a breech, and that the midwife in order to effect delivery, inserted the finger into the child's vagina, lacerating the perineum. The mother also states that at birth the child had the swelling upon the back noted at the time of examination. Recognizing the possibility of rupture of the sac, the mother has kept the child upon a pillow constantly. The child's bowels have had a tendency to move often, the passages seeming to be very small, even when no diarrhea was present. The mother believes the child has but imperfect control of the sphincter, but attributes this condition to the supposed laceration. The bladder acts normally.

Examination. The child is well nourished, and is well in all functional respects except as to the movements of the bowels already alluded to. The sphincter seems relaxed, and the skin and mucous membrane about it appear to be in an irritated condition. The perineum is partially defective upon the vaginal side, but whether this condition is congenital or acquired, is not evident from examination. There is present upon the back in the lower lumbar region, exactly in the median line, a globular, fluctuating, tense, thin-walled cyst about three inches in diameter. The epidermis covering the cyst is very thin upon the top, but becomes dense and strong near the base of the tumefaction. There is no dimple at the apex of the sac. Pressure upon the sac does not cause diminution in its size, or interfere much with the comfort of the child. There are no other deformities than that noted.

Operation was decided upon in accordance with the diagnosis of spina bifida which was made.

The anesthetized child being laid down with the abdomen across a pillow, with the head upon the table, the skin was opened by two curved incisions, and dissected from the cyst walls. The cyst being exposed fully, was opened carefully at one side, and its contents inspected. Numerous large nerve trunks ran free through the middle of the sac to be inserted loosely at its apex, others followed the walls of the sac. The opening in the sac being then carefully enlarged, the nerves were easily dissected free and were gently pushed into the spinal opening. The meningeal sac

was then cut short and tightly sutured. Two flaps of tissue were raised from the lumbar fasciae and brought together. In order to further close the spinal opening, the rudimentary laminae of the defective spinous processes, apparently the third and fourth lumbar, were nicked and arched together. Strong silk sutures were used to approximate the fascial flaps. The skin flaps were next very carefully brought together with fine catgut. Recovery occurred with primary union throughout. The defect is now strongly closed.

In conclusion, I would especially insist upon these points:

1. The iodine injection treatment is a relic of a past surgical age, and in the light of pathological studies is no longer to be practiced.

2. Nerve elements in spinae bifidae are not to be sacrificed.

3. The methods of Mayo Robson, Koch, Bayer, Senenko and Botroff are to be endorsed for their excellence in preserving important tissues and in permanently closing the hernial opening.

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OPERATIVE SURGERY OF THE GALL TRACTS,
WITH ORIGINAL REPORT OF TWENTY SUCCESSFUL CHOLECYSTENTER-
OSTOMIES BY MEANS OF THE ANASTOMOSIS BUTTON.

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[CONTINUED.]

REPORT OF CHOLECYSTENTEROSTOMIES BY MEANS OF THE
ANASTOMOSIS BUTTON.

CASE I. A. Q——, age thirty-five, female; admitted to the medical department of Cook County Hospital, May 27, 1892. Transferred to the surgical division of the hospital, June 10, 1892, and came under my care. Gave the following history: During the last fifteen years has had stomach troubles; pain and tenderness in the epigastrium; the attack would last from two to four days, was almost always accompanied by vomiting, not by jaundice. Had pain in back since childbirth; suffered from chronic constipation. One of these attacks was accompanied by jaundice, December 14, 1891. At that time had constant and intense pain for twelve hours, and an aching pain and tenderness in the epigastrium for two months following it. Jaundice cleared in about two months. During the past few months the attacks of stomach trouble would last from twelve to twenty-four hours. In February the present attack began, accompanied by jaundice and severe pruritus, which has been constant from that time up to date. These symptoms increased in severity up to the time she was admitted into the hospital. While in the medical department her jaundice was constant; her mental condition became very much impaired, and her emaciation rapidly increased.

Condition when admitted to the Surgical Department: The patient intensely jaundiced; very much emaciated; has a point of tenderness in the right hypochondriac region just below the margin of the rib; no tumor to be felt. The urine contains a large quantity of bile, no albumin. The patient suffers from considerable mental derangement, very slight elevation of temperature.

Operation June 11, 1892. I decided to perform cholecystenterostomy by means of an anastomosis button, which device I had used for the first time on a dog, six days previous. An incision three inches long was made, three inches to the right of the median line, extend-

ing directly downward. The gall bladder was found distended, nonadherent, and contained a large number of small calculi. Two calculi were found in ductus choledochus and allowed to remain. Duodenum and gall bladder were both drawn into the wound; an incision was made in the duodenum and half of the button inserted. A running thread was put in the gall bladder, an incision made, and the other half of the button inserted. The gallstones were not removed. There was considerable escape of bile, as gall bladder was not aspirated before putting in the button. The button was then pressed together without any difficulty, and the mass dropped into the abdominal cavity. Time from the opening of the peritoneum until the closing of same, eleven minutes. After the operation the patient showed no unpleasant symptoms; temperature at no time exceeded 100° F., and in fourteen days from the operation she was allowed to walk about the ward. The jaundice rapidly disappeared, and three weeks after the operation there was no trace of bile in the urine. The patient was of a very hysterical temperament after her mental condition improved; she noticed that she was an object of observation and became so erratic that we could not control her at the hospital, and were compelled to discharge her five weeks after the operation. Up to that time she stated that she had "not passed the button." She was apparently well in every particular. The button used in this case was very imperfect compared with the improved one now used.

October 28, 1892. Patient was examined by Dr. H. R. Wittwer. He found the jaundice had not returned; there was no bile in the urine, and the patient was in excellent health. He could not ascertain whether she had passed the button or not.

In December, 1892, this patient began to suffer from pain in the right side and temperature which continued to January, 1893. She was in one of the hospitals in this city. An exploratory operation was made over the site of the former operation, a contracted gall bladder was found firmly and perfectly united to the duodenum. Subsequently the cause of the temperature was found to be an abscess of the lung, not an empyema, which was drained, and the temperature at once disappeared. At no time since the first operation has the patient been jaundiced, nor has there been bile in the urine.

CASE II. The following case was referred to me by Dr. Hoelscher, who with Drs. Wiener and Lee, assisted me in the operation. Mrs. B—, age thirty-eight, widow, three children.

Parents still alive, aged seventy-six and seventy-four respectively. Brothers and sisters well; no history of any hereditary disease.

Dr. Hoelscher saw the patient for the first time October 7, 1892, and found her as follows: "Healthy, well nourished appearance; pain of sudden onset in the epigastric region, and from this point it gradually extended over the whole abdomen. She had vomited the contents of the stomach and some bile on two occasions after the seizure with pain. Bowels were constipated and had been in this condition two or three days before the attack. Vesical tenesmus and diminished quantity of urine. Gave no history of any previous pain, gastric disturbance, jaundice or colics."

On examination found a tumor in right hypochondriac region, extending downward into the iliac region and terminating in a rounded smooth end; could be distinctly felt in lumbar region, was movable and tender on pressure; there appeared to be a deep fissure between the tumor and the liver, no fluctuation apparent, bowel or colon not overlying the tumor. The diagnosis could not be determined, but it was presumed to be some lesion of the kidney, so it was decided to make an exploratory laparotomy.

Operation, October 19, 1892. I made an incision three inches long, from the edge of the tenth rib directly downward toward the border of the ilium. The tumor was exposed and found to be a very much enlarged gall bladder containing large calculi. The viscus was edematous, red and thickened. It was decided to make a cholecystenterostomy with the anastomosis button, No. 2. The gall bladder was aspirated, and the running thread inserted. The running thread was then inserted into the duodenum and the intestine incised and the male half of the button placed in position; the female half was then placed in the gall bladder through a slit made between the running thread, and the button closed. The gall bladder measured at least one centimeter in thickness and was very edematous. There was no difficulty in inserting the button. The gallstones were allowed to remain, as I do not consider it necessary to remove them unless they are larger than the button. They will pass out after the button escapes.

October 20. Temperature, 101° F.; pulse, 96. Vomited considerably during the night and complained of headache, which seemed to be effects of anesthetic. There was no pain nor abdominal tenderness.

October 21. At 5 P. M. yesterday the vomiting ceased, and the patient is feeling very well this morning.

October 27. The patient has had no unpleasant symptoms

since October 20. This morning, eight days after the operation, two large gallstones were found in the stool. The larger one weighed 117 grains, 7.8 gm.; its longest diameter one inch, its shortest seven-eighths inch. The second stone 102 grains, 6.8 gm.; its longest diameter seven-eighths inch, its shortest three-fourths inch. It will be noticed that the shortest diameter of the larger stone measures exactly the same as the diameter of button used. The patient is feeling very well and is sitting up in bed. Complete primary union. Button passed eighteen days after operation.

August 20, 1893. The patient has excellent health and not the least symptom of her previous trouble.

CASE III. This case was referred to me by Dr. J. H. Hoelscher, who gave me the following history: "Mrs. Z—, age thirty-six, married, six children. Enjoyed perfect health until twenty-two years of age; at that time, three months after childbirth, had an attack, of short duration, of severe epigastric pain and vomiting. It was not accompanied or followed by jaundice. Ever since that attack she has had digestive disturbances, as distress following certain kinds of food, eructations of gas, constipation, loss of appetite. Four years ago she had a similar attack of pain in the epigastrium, accompanied by vomiting. From that time on the pain returned every five or six weeks, up to five months ago, when she noticed a constant aching pain and tenderness in the right hypochondriac region, that persisted until the present time. The pain and soreness was very much increased after working in a stooping posture. She has suffered much from general debility, and complains frequently of slight chills. Throughout the entire progress of her disease jaundice was never present. The urine was tested several times with negative results. She does not give a distinct history of having had hepatic colic.

"About three months ago she found small particles the size of mustard seeds, in the feces, which some one told her were gallstones. There is no positive evidence that she ever passed a gallstone. Physical examination revealed heart and lungs normal; liver not increased in size. Manipulation reveals a pear shaped, hard tumor in the region of the gall bladder, measuring about three inches in length, and two in width. It moves synchronously with the diaphragm in respiration. On pressure considerable pain is produced, and a slight creaking sensation is felt by the fingers.

It can be separated from the kidney, and can be moved considerably from side to side."

The diagnosis of gallstone was made by Dr. Hoelscher, and the case was referred to me for operation.

Operation, November 23, 1892. Assisted by Drs. Hoelscher and Lee, in the presence of Dr. Nicholas Senn, Dr. Dunn, of Minneapolis and Drs. W. J. and C. H. Mayo, of Rochester, Minn. The incision was made the same as in Case II.; a contracted gall bladder packed full of gallstones, slipped into the wound. A little difficulty was experienced in drawing the duodenum forward, as some old adhesions existed. The running threads were inserted in gall bladder and duodenum; male half of button placed in duodenum, and held by an assistant. An incision was made in the gall bladder, which was found so full of gallstones that half of the button could not be inserted without removing some of them. A dozen were quickly picked out with the dissecting forceps. About twice as many were allowed to remain. The female half of the button was inserted in the gall bladder, and the running thread tied. Button pressed together. Toilet of field of operation was made with dry gauze, and the viscera dropped back into the abdomen. Deep and superficial rows of sutures in abdominal wall. Time for entire operation twenty-one minutes. The time for inserting the button was not taken. Patient rallied rapidly from the anesthetic. Pulse after operation 70; temperature normal. Neither nausea nor vomiting.

November 25. Pulse, 78; temperature, 100.5° F. Patient complains of slight pain at seat of operation. No tympanites nor abdominal tenderness.

November 28. Patient expresses herself as feeling very well. At no time since the operation has patient's temperature exceeded 100.5° F. She is allowed to take a quantity of liquid nourishment, but not sufficient to satisfy the appetite. I consider her now out of danger. Dr. Hoelscher is to be congratulated on his diagnosis in this case in the absence of so many important symptoms.

August 20, 1893. Dr. Hoelscher reports to me that this patient has enjoyed better health since the operation than she had for years previous. Not one of the symptoms returned.

CASE IV. Mrs. F—, Referred to me by Dr. Hoelscher, who furnished me the following history:

"Patient age fifty-six, married, has several children. For the last four years has suffered from attacks of difficult breathing and palpitation. These attacks were usually accompanied by pain

and tenderness in the right hypochondriac region. On three or four occasions in the past year has had colic, and most of that time was unable to work and was confined to her room. These attacks were never followed by jaundice, or vomiting. Never passed gallstones. On December 11, 1892, patient had a severe attack of pain with vomiting, and great tenderness on pressure in the right hypochondriac region. This continued up to the time of the operation, but no jaundice was present, and no bile in the urine." Dr. Hoelscher requested the operation of cholecystenterostomy.

Operation December 18, 1892. Dr. Murphy, assisted by Drs. Hoelscher and Lee, performed cholecystenterostomy by means of the button. A number of gallstones were removed. The button was easily inserted. The abdominal wound dressed. The patient was removed from the table in excellent condition. Her convalescence was uneventful.

August 20, 1893. Patient called at office and reported that she has enjoyed better health since the operation than for years. Has not had a recurrence of the dyspnoea or palpitation. Has gained very much in weight and strength. No recurrence of pain.

CASE V. Mrs. D. W——, Called to see patient by Dr. T. J. Conley, who furnished the following history: "Patient, widow, age fifty-four. Has had several attacks of pain in the right hypochondriac region for the past two years. Two weeks before the present attack suffered from a severe purulent bronchitis and was much emaciated by it. Shortly after the bronchitis subsided, she had an attack of pain and pressure in the right hypochondriac region. She never had an attack of jaundice.

"On examination January 29, 1893, patient emaciated; suffering from bronchitis, pain and tenderness in the right hypochondriac region; a small tumor can be felt in the same region. It is movable and can be separated from the kidney."

Operation January 31, 1893. Dr. Murphy, assisted by Drs. Conley, Lee, Hartmann and Wittwer, performed cholecystenterostomy. There was no difficulty in inserting the button. Time nineteen minutes. The patient suffered very much from vomiting for five days following the operation. Button passed on the twenty-eighth day after the operation; two stones were also passed. Highest temperature after operation 100.5°F. This was attributed to the bronchitis.

Dr. Conley, under date of May 8, 1893, wrote me the following:

"Mrs. D. W., on whom you performed cholecystenterostomy,

is strong and enjoying very good health. Several times within the last two weeks she has walked two miles without fatigue. There is no tenderness or pain at the seat of the operation."

CASE VI. History and particulars furnished by Dr. E. W. Lee, in whose practice this case occurred. "Mrs. L——, age forty-eight, married. At intervals in the last three years patient has suffered from severe attacks of colic, accompanied by nausea and often vomiting. The pain was always located in the right hypochondriac region and often in the 'pit of the stomach.' These attacks would last for several hours, and then would suddenly disappear, leaving a soreness at the seat of pain. They were never accompanied by jaundice until the present attack, which began February 14, 1893, six days before operation. This attack was more severe and prolonged than any of the previous ones. The vomiting was very severe. The tenderness over the gall bladder was extreme.

"Operation February 20, 1893. Dr. E. W. Lee, assisted by Drs. Murphy, Hartmann and Wittwer, performed cholecystenterostomy by means of the button. The gall bladder was very much contracted, and there were many adhesions. The adhesions were separated and a medium sized button inserted, producing a perfect approximation. Seven small stones were removed at the time of the operation. The recovery was uneventful. Patient passed the button March 6, fourteen days after the operation. A number of small stones were passed subsequently.

"August 26, 1893. Patient has been able to work more since the operation than for three years previous. Has had no colic or digestive disturbances."

CASE VII. Dr. William J. Mayo, Rochester, Minnesota, in a personal letter furnished me the following history: "W. H——, Racine, Minn., American, male, aet. 71. Patient gave a history of colics for two years, jaundice for two months; great debility, cholemia, white stools, etc.

"Operation April 6, 1893, by Dr. W. J. Mayo, assisted by Drs. C. H. Mayo and S. Plummer. Usual incision for operation on gall bladder. No stone found in gall bladder; obstruction in common duct. Cholecystenterostomy by Murphy button. Bladder could not be brought to surface, obstruction could not be removed; the button was readily placed in position; no unpleasant symptoms since the operation."

This is a remarkable case on account of the age of the patient,

and the doctor deserves great credit for operating on a patient so debilitated at the time of the operation.

Case VIII. From Dr. Wm. D. Foster, Kansas City, Mo. "Mrs. A. M. S——, aet. 58. Diagnosis, cholelithiasis. Operation Nov. 23, 1893, cholecystostomy. Gall bladder contained more than one pint of fluid consisting of mucus and bile; six hundred and twenty-six gallstones removed which weighed six drachms. Gall bladder was sutured to abdominal wall; subsequently the fistula was closed with wire sutures; operation unsuccessful.

"Operation April 28, 1893, cholecystoduodenostomy by means of the Murphy button. No attempt was made at the time to close the fistula.

"Aug. 13, the fistula completely closed without operation. The bile discharged into the intestine."

CASE IX. M. D——, Alexian Brothers Hospital. Transferred to my service by Dr. Hoelscher. Age 42, male, single. Several weeks ago he began to have pain and a sense of pressure under the border of the right ribs. This was sometimes accompanied by severe pain, with nausea and vomiting, but no jaundice. One week ago the pain became very much more severe, and was soon followed by jaundice. Shortly after the jaundice appeared the pain ceased, but the tenderness remained over the region of the gall bladder.

Status praesens. Icterus very marked, large quantities of bile in the urine, feces acholic. Tongue dry and brown; temperature 100.4°F; pulse 86, full and regular. The patient very tender over the lower margin of the right costal arch. An induration could be felt, but the gall bladder could not be outlined.

Diagnosis: Cholelithiasis with occlusion of choledochus.

Operation May 6, 1893. The patient acted very badly under chloroform, so it took ten minutes to open the peritoneal cavity. The gall bladder was aspirated and joined to the duodenum with the button in ten minutes, and ten minutes was consumed in making the toilet and suturing the wound, making thirty minutes in all. A small stone was removed from the gall bladder, but the obstruction in the common duct was not disturbed. The patient made an uneventful and rapid recovery. The jaundice rapidly disappeared after the operation. The patient was up and about the ward on the fifteenth day. Voided the button on May 22, sixteen days after the operation. The urine showed a negative reaction for bile May 14.

August 15, 1893. The patient reported at the hospital. Has

gained very much in weight and is enjoying excellent health. No return of his symptoms.

CASE X. Mrs. B——, Rock Island, Ill., admitted to St. Joseph's Hospital, May 13, 1893. Patient was very much emaciated from an illness extending over a period of six weeks. In the last two years suffered from frequent attacks of pain in the right hypochondriac region, accompanied by vomiting. These attacks were not followed by jaundice, except the last one, which began six weeks ago. This attack continued with severe pain, vomiting, great tenderness over the region of the gall bladder. The temperature was of an intermittent character, fluctuating every other day from 99° F. to 103° F. On the intervening day no temperature. The elevation of temperature was frequently, but not always, preceded by a chill.

Status praesens. Patient slightly icteric, very much emaciated, pulse 120, feeble but regular. Urine contains a considerable quantity of bile; patient is nauseated when she sits upright. The attacks of pain come on every few hours and are of a distinct colicky character. There is present a tumor extending three inches below the margin of the ribs in the right hypochondriac region, and about three inches in diameter; it moves synchronously with the diaphragm in the respiratory act, and is very sensitive on pressure. It can be separated from the kidney, which is situated below and behind, and does not move with respiration.

Diagnosis: Cholecystitis—impaction in the ductus choledochus.

Operation May 22, 1893, Dr. J. B. Murphy assisted by Drs. Lee, Hartmann and Wittwer. Cholecystenterostomy by means of anastomosis button. The operation was performed without difficulty; time, 13 minutes. A few calculi were removed at the time of the operation.

Subsequent History. There were no unpleasant symptoms in the subsequent course of the case; patient was discharged from the hospital on the fourteenth day after the operation. Button passed eighteen days after operation.

August 27, 1893. Patient has increased very much in weight, is enjoying excellent health, attending to all her household duties, and has had no return of the symptoms.

CASE XI. Dr. A. H. Fabrique, of Wichita, Kansas, in a personal letter, under date of July 20, 1893, writes the following:

"Enclosed please find report of patient on whom I performed cholecystenterostomy by means of your button.

"Mr. R——, aet. thirty-eight, farmer, weight 180 pounds. Had been subject to attacks of hepatic colic. Came under my observation about the middle of May, 1893. Had been suffering for two weeks previous to that time with severe pain in the region of the liver, for which he was taking one-third grain of morphine three to six times a day. Jaundice all over the body for a whole week prior to the time he consulted me.

"Operation, June 1, 1893. Found the wall of the gall bladder so thickened that it was difficult to fasten the button into the bladder. I used the smallest button; duration of operation thirty-five minutes. Closed the opening with silk sutures through the entire abdominal wall. Temperature did not rise any time above 99.5°F. Union per primam. There was marked improvement on the third day; skin commenced to clear up; no hepatic pain after the operation. Stools changed from white to a natural color; button passed on the twenty-first day. At the present time the man is perfectly well, pursuing his usual avocation."

CASE XII. Under date of July 20, 1893, Dr. W. B. Rogers, of Memphis, Tenn., states that immediately after his return from the National Association of Railway Surgeons at Omaha, he had an opportunity to use the button in the operation of cholecystenterostomy.

The following is a report of the case as furnished me by Dr. Rogers: "W. A. E——, male, fifty-eight years of age. Presented April, 1893, all the physical signs of an enlarged liver; area of dulness occupying the epigastrium. No bile in the stools. Icterus marked; emaciation very pronounced; temperature 98°F.; pulse 68. Diagnosis: 'Cancer of liver,' had been repeated by several physicians and case pronounced hopeless. The enlargement of the liver was of only a few months' duration. The extreme rapidity of growth aroused suspicion of nonmalignancy. Exploratory incision revealed distended gall bladder. Eighteen ounces of mucopurulent bile; occlusion common duct, with consequent retention and congestion of liver. No evidence of malignant disease could be detected; nor could a calculus be detected in common duct. Cause of obstruction not discerned. Patient's condition urged a rapid completion of all operative procedures, hence fistula was established. Patient recovered from operation. Fistula discharged at least two pints of bile per day; icterus disappeared. General condition continued bad. Absence of bile in bowel kept nutrition below par.

"Operation, June 1, 1893. I reopened abdomen and united small intestine to gall bladder by means of Murphy's button; did not

attempt to close the fistula; tied thread to the button, and on the tenth day removed the button through the fistula. No reactionary fever nor bad symptoms other than that of depression due to shock. Patient gradually improved, and at the end of eight weeks was able to be up and about the house gradually gaining strength. Fistula has contracted, so that dressings only need changing every third day. Stool contains bile; appetite and digestion steadily growing better, and evident gain of flesh. I found the application of the button quite readily accomplished; the coaptation of parts perfect, and the results are as stated."

CASE XIII. This case occurred in the practice of Dr. F. S. Hartmann who furnished the following report: "M. McC—, age 60, widow, multipara. About eight years ago she had a severe attack of colicky pain in right hypochondriac region; pain was intense and lasted about three days. Patient was jaundiced during this attack; she does not remember any other symptoms.

"In March, 1893, she had a second attack, colicky pains in hepatic region and epigastrium, vomiting, chills, fever, jaundice; sick about one week. Patient came from Philadelphia to Chicago on a visit last April; since her arrival she has had nearly a dozen attacks of pain which would last from six to twelve hours, and have always been followed by great prostration. The last attack began at 1 A. M. July 13, 1893; colicky pains, great tenderness over upper half of abdomen, more marked in region of gall bladder; jaundice, persistent vomiting, temperature 100°-101°F, bile in urine, clay colored passages.

"Operation, July 18, 1893. Cholecystenterostomy with Murphy button, performed by Dr. F. S. Hartmann, assisted by Drs. Murphy, Lee and Wittwer; time seventeen minutes. After operation patient's condition was excellent, and her recovery was uninterrupted. Pulse always below 100 and good; temperature never ran above 99.8°F., and attacks of colicky pain ceased. Vomited once or twice daily for three days; vomited matter containing bile. Forty-eight hours after operation gauze drain was removed from peritoneal cavity. Bile gradually disappeared from urine, and feces regained their color. At no time was there any great tenderness in region of operation. Button and fourteen calculi were passed in one stool on the fourteenth day after operation. Greatest circumference of largest calculus $2\frac{1}{8}$ in; smallest circumference of largest calculus $2\frac{1}{16}$ in; circumference of button $2\frac{1}{8}$ in. Patient sat up on the nineteenth day after the operation.

"August 29, 1893. Patient enjoying excellent health, better than at any time since her second attack of colic."

CASE XIV. In a personal letter to me, Dr. Alex. Hugh Ferguson, of Winnipeg, Manitoba, under date of August 14, writes the following:

"Operation, August 3, 1893, I used your button in uniting the gall bladder with the duodenum—cholecystoduodenostomy. Patient passed the button on the eleventh day, and her condition is excellent. The case was difficult to manipulate owing to the short build and large amount of fat (fully three inches) in the abdominal wall. It was a case of dropsy of the gall bladder. One stone was removed from it, another was felt to occlude the duct."

August 28, 1893, I received a report of this case through Dr. McArthur, of Winnipeg, who had assisted Dr. Ferguson at the operation; he states that the patient is in excellent health, and that Dr. Ferguson expressed himself concerning the button in the following words: "It is the greatest innovation in abdominal surgery since that of antisepsis."

CASE XV. From Dr. T. D. Lane, Media, Pa. "Mrs. L——, aet. forty-five, married, one child. In October 1892, was taken ill with intense abdominal pain, paroxysmal in character, accompanied by vomiting and constipation. Jaundice appeared on second day, also bile in urine; stools acholic; on sixth day severe chill followed by temperature of 104° F. As the jaundice was of the most marked type, coming on suddenly with no previous history of trouble or emaciation, vomiting or pain and the temperature and chills persisting for several days, I sent the woman to the Jefferson Hospital under the care of Prof. I. C. Wilson with the diagnoses of acute obstructive jaundice and Charcot's hepatic fever, with the hope that an early operation at least of an exploratory character would be performed. She remained in the hospital nineteen weeks. The chills and jaundice persisted; she emaciated rapidly; she was seen in consultation by Drs. Keen and Brinton. Operation was deferred on account of the woman's weak condition and the possibility of malignant character of the obstruction. The fever and jaundice finally disappeared and she was discharged from the hospital February 1, 1893. She gained rapidly until July 15, when I was called to see her again. The vomiting, chills and fever had suddenly returned. I determined to perform cholecystostomy at once. This I was able to do without much trouble in an operation of one sitting. I removed a very large stone marked with numerous facets. I could not discover the presence of another

er in the common duct with my finger through the foramen of Winslow. Supposed the obstruction was due to cicatricial contraction. Temperature dropped to normal the following day. In a month she was up and about. Still the stools remained clay colored and she suffered much from gaseous distention of the bowels. She was also greatly annoyed by the voluminous discharge of the bile upon the surface. I determined to close the biliary fistula.

"Operation, September 20, 1893. I made a Y-shaped incision over the old cicatrix, pushed the great omentum aside and drew out a small knuckle of intestine and performed cholecystenterostomy, using the smallest sized Murphy button. The fistulous tract was curetted and closed at once with a circular stitch. The abdominal wound was closed without drainage. The temperature remained between $99\frac{1}{2}^{\circ}$ and $100\frac{1}{2}^{\circ}$ F. for several days. Otherwise she made an uninterrupted recovery. On the fifteenth day the button was found in the stool. Since then she has been in very good health, able to attend to all her duties and has gained twelve pounds in weight."

CASE XVI. Report of operation given by Dr. J. Frank in whose service at St. Elizabeth's Hospital the case occurred. "Patient admitted at Hospital as a 'Perityphlitic Abscess.' Careful examination showed that it was a very much distended gall bladder. An incision was made directly over the tumor. The gall bladder was found adherent and was immediately incised; 143 stones were extracted, and the opening allowed to remain. Patient was discharged with a fistula. Returned several months after with a large quantity of bile discharging from fistula, probed and found stone; removed. The canal leading to bowel could not be entered. The discharge continued in large quantity and the patient was losing strength. It was decided to perform a cholecystenterostomy to allow the secretion to enter the bowel in large quantity.

"Operation Oct. 20, 1893 by Dr. M. H. Luken. An incision was made at the side of the fistula. The gall bladder which at the time of the first operation, was a large distended sac, had now, four months later, contracted to a tube not much larger than a finger and was adherent to the surrounding tissues. It was difficult to expose a sufficient surface of the gall bladder to insert a button. The button was finally placed in position and the duodenum united to the gall bladder. The button passed on the 13th day without pain. An operation has not yet been performed to close the ex-

ternal fistula. A patulous opening now exists between the gall tracts and duodenum."

The difficulty of performing the operation of cholecystenterostomy under these conditions was extremely great and as Dr. Frank expresses it "I do not think that the operation could have been performed by any other means than the button."

CASE XVII. Dr. F. S. Hartmann furnished me with the report of this case that occurred in his practice. "Patient states that about five years ago he had an attack of painful stomach trouble; it was not accompanied by nausea or vomiting. The illness lasted about one week. On August 23, 1893, patient experienced a dull aching pain in pit of stomach which lasted two days; then suddenly became much worse and of a colicky nature and was accompanied by persistent vomiting of bile and mucus. The colicky pain lasted two days and was very intense. The patient has had eight similar attacks since. A characteristic feature of all his attacks has been the peculiar manner in which three symptoms have followed each other:

"First, acute colicky pain;

"Second, a burning sensation in chest and throat;

"Third, persistent vomiting.

"He suffered from digestive disturbances for fifteen years. During an attack occurring September 29, a trace of bile was found in urine. Patient was never jaundiced. No calculi were ever found after an attack. Diagnosis, cholelithiasis, obstruction of cysticus.

"Operation October 26, 1893, by Dr. F. S. Hartmann, assisted by Drs. Murphy, Wittwer and Lee. Cholecystenterostomy by means of Murphy button. Gall bladder somewhat enlarged. Time for insertion of button seven and one-half minutes. Time for entire operation, twenty-six minutes. Convalescence uneventful. Button passed on ninth day."

CASE XVIII. W. B——, aged forty years, cigar maker. Three years ago had first typical attack of gallstone obstruction, accompanied by jaundice. Since that time has had five similar attacks; last one began about two weeks ago; was less severe than previous attacks.

Operation November 7, 1893, by Dr. Murphy. Cholecystenterostomy by means of anastomosis button, smallest size. Gall bladder was found distended; gallstones not removed. Time from beginning of operation to completion of anastomosis eleven minutes. Patient acted very badly under anesthetic; ether. Had some bronchitis following operation; aside from this his convalescence

was uneventful. Was about the ward in three weeks. Jaundice had completely disappeared.

CASE XIX. By Dr. James H. Dunn, Minneapolis, Minnesota. "Mrs. W——, age thirty seven, suffered from attacks of gall colic every three or four months for the past four years. They were accompanied by vomiting, jaundice, constipation, clay colored stools. The last attack has continued for about eight weeks, necessitating the use of large doses of morphine all the time.

"Operation January 6, 1894. Median incision, found the gall bladder normal size, and nearly full of stones, duct impacted with small ones. Cholecystoduodenostomy with the Murphy button; patient's only complaint after operation was pain on deep inspiration, temperature reached 100°F. once; button passed on the eighteenth day, and with it twenty-six stones. Patient made an uneventful recovery.

"In these days it is pretty hard to say where we are in surgery but I am very sure the Murphy button has come to stay."

CASE XX. Case referred to me by Dr. J. H. Hoelscher, who had made the diagnosis of cholelithiasis. Mrs. F. H——, age thirty-six; married; two children; has been sick for twelve years; has had attacks of colic every two or three months in that time, not always accompanied by vomiting, never by a typical jaundice although occasionally there has been a slight icteric discoloration of the skin, great digestive disturbance, no tumor to be felt.

Operation February 13, 1894, by Dr. J. B. Murphy. Incision from ninth costal cartilage; gall bladder adherent to duodenum, liberated, brought into wound, puckering string placed in position, incised, and two stones three-fourths of an inch in diameter removed, some viscid mucus but no bile escaped, button placed in position in gall bladder and duodenum, and closed; no drainage. Time of operation, eleven minutes, convalescence uneventful, patient did not even vomit from the anesthetic, and temperature did not exceed 99°F.

VIII. *Cholecystectomy, Total Extirpation of the Gall Bladder.*—This operation was introduced by Dr. Langenbuch. At first there was most bitter opposition to the operation, but it has now obtained great recognition. For a certain class of cases it is the operation par excellence: 1, on account of its safety; 2, because it completely fulfils the indications. Langenbuch is sustained in the theory of his operations by the fact already mentioned, namely:

Absence of the gall bladder being harmless, as far as the health of the patient is concerned, as demonstrated by the large

number of animals and men in which this viscus has been found to be congenitally absent, and made no apparent difference in their health. I have found in dogs, on which I have performed this operation, that their health was not interfered with in the slightest.

The only question of gravity for the consideration of the surgeon, as long as its absence does not materially affect the patient, is: What are the dangers of the operative procedure itself? That these dangers are not great is shown by the following statistics: We have collected in all sixty-five cases; there were eleven deaths, a mortality of seventeen per cent, which is even more favorable than cholecystostomy, and this operation is rapidly finding favor with surgeons, notwithstanding the assertions of Tait when the operation was first suggested in May, 1884, that it was "absurd;" in June, 1885, that it was "radically absurd," and in October, 1889, that it was "intrinsically absurd," (Courvoisier); another illustration of how valueless a man's opinion may be of an operation that he has not tried. The indications for this operation are: 1, hydrops and empyema of the gall bladder when it is already disconnected from the choledochus by occlusion of the ductus cysticus; 2, in severe chronic recurrent cholelithiasis vesicularis; 3, in severe diseases of the wall of the gall bladder itself, ulceration, gangrene, contraction and carcinoma; 4, in internal rupture or wounding of the gall bladder when suture is difficult or impossible. It is contraindicated by strong adhesions to its surroundings; by broad and close attachments to the liver; in all permanent closures of the choledochus.

IX. *Choledocholithotripsy, or Crushing of Gall Stone in the Choledochus.*—The operation has been performed three times with success, by Credé, Courvoisier and Kocher. It was found in these cases that there were fragments after the crushing that would not pass through the choledochus but might regurgitate back into the gall bladder. There is also no certainty that the remainder of the canal is patulous below the point where the fragments lodged. Credé's patient had severe attacks of colic and fever in passing the fragments. Again, there is danger in the act of crushing the stones of injuring the walls of the duct so as to subsequently cause a perforation; for these reasons this operation should not be performed.

X. *Choledocholithectomy, with subsequent suture of duct.*—This operation has been performed five times with two deaths, giving a mortality of forty per cent. It is a very difficult opera-

tion to perform as the duct is deeply seated and the escape of bile in the field of operation after the incision is very annoying to the operator. This operation was first performed by Courvoisier, and he deserves great credit for his ingenuity and courage in devising and undertaking this operation, as well as being the first to perform a successful cholecystendysis, and to do the first successful choledocholithotripsy.

This operation is to be undertaken, 1, Where the stone is large and firmly impacted in the duct and when the patient has symptoms of intermittent fever and chills. 2, Where the stone is impacted in the duct and the ductus cysticus is obliterated, preventing the formation of a gall bladder and intestinal fistula for the escape of the bile. 3, Where it has produced ulcerative perforation and the wall at the opening is in a healthy condition, otherwise the gall duct should be excised at that point, both ends ligated and a cholecystenterostomy performed.

The following operation was performed:

CASE I. Mrs. Matilda B—, age thirty-five, multipara, admitted to hospital Sept. 20th, 1893. Enjoyed perfect health until three years ago, at that time had first attack of colic, intense pain of sudden origin in right hypochondriac region, very sensitive under right costal cartilage, pain continued several hours, followed by vomiting; was not followed by jaundice. Two years later similar attack with no jaundice. Five weeks ago had third attack. Has had frequent severe attacks of pain since the beginning of the last one a week ago, which have continued to the present time, October 20, 1893. Jaundice made its appearance for the first time four weeks before admission, and is still present. She does not know that she ever passed a gall stone. Never had any urinary difficulty. Stomach always good. Was never free from tenderness in right epigastric region since time of first attack. Present condition; very icteric, rapid feeble pulse, expression of severe suffering, complains of great thirst, anorexia. Very sensitive in right hypochondriac region. No tumor perceptible. Temperature, 103° F.; pulse, 138; respiration, 34. Diagnosis:—Hepatic calculus impacted in ductus choledochus. October 21, 8 A. M., pulse, 100; temperature, 102.8° F.; respiration, 36; P. M. pulse, 102; temperature, 103° F.; respiration, 36. October 22, P. M. pulse, 96, temperature 102° F.; respiration, 40. October 23, A. M., pulse 94; temperature 99° F.; respiration, 30.

Operation October 23, 11 A. M. Dr. Murphy, assisted by Drs. Hartmann, Wittwer, Kortebein, performed laparotomy; found

gall bladder contracted to a tube, large calculus one-half inch in diameter situated in the middle of choledochus. Gall bladder could not be utilized for approximation to the intestine. It was decided to remove the calculus from the common duct, which was thoroughly exposed. An incision one-half inch long was made in the duct, parallel with it, stone extracted. The opening in duct was united with continuous suture. Gauze drainage. Time forty-five minutes. There was but very little hemorrhage during operation, and none whatever after suturing. Some shock. Pulse, 11:40 A. M., immediately after operation, 64; respiration 30; 5:30 P. M. pulse 72; temperature 97°F.; respiration 32; 10 P. M. pulse 78; temperature 97.4°F.; respiration 32.

October 24, 8 A. M., pulse 94; temperature 98.8°F.; respiration 32. Rested well during night; nauseated, but no vomiting since operation. October 24th, 6 P. M., pulse 144; temperature 103°F.; respiration 36.

October 24, 12 P. M., pulse 108; temperature 101°F.; respiration 26. Condition much improved; pulse still feeble.

October 25, 2 A. M., pulse 110; temperature 102°F.; respiration 35. Pulse very weak. Died at 3 A. M., very suddenly.

Post-mortem not allowed. It is therefore impossible to say what was the cause of death.

The clinical cases requiring surgical interference in lesions of the gall tracts are the following:

First, in all cases of obstructive jaundice, where the jaundice exists during a period of two weeks.

Second, in all recurrent cases of obstructive jaundice.

Third, in cases of recurrent cholecystitis.

Fourth, in recurrent cases of colic from cystic duct obstruction, always without jaundice.

Fifth, in retention cysts of gall bladder.

Sixth, in malignant growths of gall bladder.

Contraction of the gall bladder occurs in more than eighty per cent of the cases of cholelithiasis. It is the result of the cicatricial contraction produced in the gall bladder by a chronic inflammation or irritation of it by the gallstones; therefore the earlier the operation is performed, the less liable we are to find contraction. There is another danger and that a serious one; perforation of the tracts by the calculus. I have been called in consultation within the last eighteen months in three cases of perforation of the gall tracts, all attended by an infective peritonitis and all died; a history of repeated attacks was given in each. In one case the

patient had the question of operation under advisement on account of the frequency of attacks. None of them were suffering from colic or obstructive jaundice at the time of the perforation, which shows that there is danger even in the quiescent stage.

Another reason for the early operation is the danger of a malignant growth being produced by the constant irritation. In looking over the records of the pathological institutes we find abundant proof that a considerable percentage of cases of cholelithiasis terminate with carcinoma of the gall tracts. I have seen a large number of post-mortems presenting this condition.

These reasons, along with the dangers which accompany an acute attack of obstructive jaundice are, I think, considering the small percentage of mortality, sufficient to justify early operative interference.

You will find in reviewing the results of these operations that the mortality is greatest in the operation of cholecystenterostomy "in one sitting," by means of suture, in which thirty-five per cent of the cases terminated fatally. The operation showing the next greatest fatality is cholecystendysis, with a mortality of twenty-three per cent. Next high in the scale of mortality is cholecystostomy "in one sitting," the operation which is most prevalent and performed more frequently than any other, and almost as frequently as all the others combined; its mortality is nineteen per cent. This great mortality should cause every thoughtful operator to endeavor to find some other means whereby his patients will not be jeopardized to such a great degree, and while the mortality is nineteen per cent, the percentage of perfect recoveries is only about fifty-one per cent; making the chances for life in the ratio of five to one, and the chances for complete recovery but one to two. Then comes cholecystectomy with a mortality of seventeen per cent. The most favorable of the older operations is cholecystostomy, "in two sittings," in which you have a mortality of ten per cent.

In reference to the criticisms by Prof. Senn, *Jour. Am. Med. Ass'n.*, August 12, 1893, I would say that while he does not comment on the use of the "button" in cholecystenterostomy, some of his criticisms would be applicable to the use of the button in that operation as well as operations on the intestines, therefore, I deem it proper to treat them in this article.

First, he says that "it is no improvement on the rings employed by Denans more than half a century ago." The cor-

rectness of this statement can be readily tested by a cursory comparison of the two devices, (compare figure 2 and figure 6).

Second, he says "that a foreign body is left in the intestinal canal, which may become a source of danger on its way to the distal end of the alimentary canal." Will it become a source of danger, and when? The ileocecal valve is the place in the normal intestinal tract in which it would be most likely, if at all, to produce an obstruction. That this valve in its normal condition allows the passage of bodies much larger in diameter than the button, is shown by the many experiments on that portion of the canal. It is further shown by the clinical observation of medical practitioners, who from time immemorial have seen children swallow coins, nuts, peach stones, marbles and other foreign bodies much larger in proportion to the child's intestine than the button recommended, and pass them without producing unpleasant symptoms. This is considered by doctors to be of so

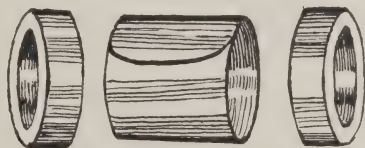


FIGURE 6.—Denans' Rings.

little danger that they advise the patient "to pay no attention to it, and forget that such a thing occurred." What surgeon would become alarmed if one of his young patients swallowed a coin or marble? Admit that a coin or marble, under certain pathological conditions, has produced trouble; to the one such case there are thousands that have not.

It will be admitted that with cicatricial contraction of the bowel or a malformation of the ileocecal valve, obstruction might be produced by the button, but the proportion of these cases would be about the same as the proportion of cases of trouble produced by the coin or marble, and so small as to be scarcely worth serious attention.

I have now reports of three hundred (300) operations and experiments with the button. The obstruction so much dwelt upon by the critics of the button did not occur in one of my cases, nor has it "come to my knowledge" that it occurred even once in the cases of others who have performed the operation.

Dr. W. W. Keen in the same paper from which Senn quotes a portion of a sentence referring specifically to the objection, says,

"on the whole, however, I do not feel that this objection is a very serious one, since the condition requiring the use of the buttons, if they be used, is one which must dominate all other risks." (*Annals of Surgery*, June, 1893, p. 660). It can therefore be seen that the danger of obstruction by the button is so slight that it is entitled to no weight in view of the ease with which it is inserted and the certainty with which it fulfils its purposes.

Third. "Any instrument, suture or ligature used in effecting the continuity of a wounded or divided bowel that produces gangrene must be looked upon as a source of danger." The term gangrene is misleading in this connection; the term intended, no doubt, was pressure atrophy. Every suture, every mechanical means that is used, every ligature that is tied in approximating the intestine produces pressure atrophy in a greater or lesser degree, or it gives no support. Shall we discard all these useful measures? Pressure atrophy, "gangrene," (Senn) in vascular tissues is limited to the area of pressure in which the circulation is shut off and is always controlled thereby.

The button above all other methods, suture, rubber rings, bone plates, etc., protects the peritoneal cavity. There is no suture on the peritoneal surface; there is nothing left within the peritoneal cavity; it is shut out and sealed up by a uniform compress. This compress closes as pressure atrophy takes place and closes in the direction of pressing the surfaces desired to be agglutinated, closer and closer together. This is not accomplished by any other device. True there is a substance in the caliber of the intestine, call it foreign if you please; so are the materials used as food to some degree foreign materials, but they, like the button, are on the safe side of the intestine within it, not without.

Fourth. "Because the lumen of the connecting part is not large enough as a temporary outlet for the intestinal contents above the seat of operation." This objection is not tenable. The surgeon well informed on the physiology of the small intestine knows that its contents are always fluid, except in cases where some indigestible solid substance is introduced. Patients are not usually allowed an ostrich diet for a few days following an intestinal anastomosis. No matter what medicine may be given, it does not render the contents of the small intestine solid; they are always fluid. The amount of fluid that would pass through the central opening in a medium sized button in twenty-four hours can be easily computed, and represents many times the weight of the

entire body, while the average amount of feces in the same time is five ounces.

Fifth. The fragment of a sentence quoted by Senn, from Keen's article, is such an inadequate representation of the scientific and fair manner in which this recognized authority treats the subject, that I venture to quote more extensively from it as follows, pages 660, 661: "The speed and certainty with which an anastomosis can be made once the bowel is prepared for it, are certainly advantages which the button possesses over all other means of anastomosis, whether by simple suturing or by bone plates, catgut or other rings." "It is certainly a most happy mechanical invention, especially the method of fastening it by what is practically a secure screw, and yet instead of being rotated in order to fasten it, it simply needs to be pushed home. The two projecting teeth which answer the purpose of the male screw, make it one of the most ingenious devices I have ever seen."

From Keen's postscript I will quote the following, as showing the perfection of the union: "From the outside, one would almost think that it was the normal termination of the ileum in the colon; no more perfect union could be imagined." In regard to the contraction found by Keen in the post-mortem which he reports, we are compelled to admit the force of the suggestion made to me by Dr. W. J. Mayo, that a vital point in the report of that post-mortem is omitted, namely, a comparison of the diameter of the ileum before operation and at the post-mortem. Before operation there was undoubtedly, with a chronic obstruction, distention of the ileum. Did the opening contract more in proportion than the ileum itself, and was not the contraction of the opening due to the contraction of the ileum from its expanded, obstructed, preoperative condition, to its normal, contracted, empty condition produced by a free escape at the anastomosis as found in the post-mortem? An analagous contraction to this is shown in cases in which a cholecystenterostomy is performed experimentally; the opening which was originally the size of the button used is reduced not by the contraction of the cicatrix, but by the contraction of the gall bladder, which after a number of weeks is reduced to the size of a cystic duct. Dr. C. E. Ruth, of Keokuk, in *The Omaha Clinic*, September, 1893, says: "I wish to call especial attention to the specimen in which an approximation was made between the duodenum and the gall bladder. You see that what was a gall bladder has ceased to exist as such, and nothing remains of it but a duct. Its contraction has narrowed the opening which delivered

a five-eighth inch button until it is the size of a slate pencil and shows well marked folds of mucous membrane at its margins that must act as a valve to prevent the passage of intestinal contents into the gall bladder."

A year and four months have elapsed since the first operation of cholecystenterostomy with the button was performed upon the human subject, and the symptoms of obstructive jaundice have not appeared in this nor any of the subsequent cases, as was feared by Dr. Abbé.

The following is a report by Dr. J. Henry Barbot, of San Francisco, of a case in which a post-mortem was made: (*Pacific Medical Journal*, April, 1893). The operation of gastroenterostomy was performed on December 26, 1892. The case was one of carcinoma, involving a large portion of the pyloric end of the stomach. The button used was made from the description given in my paper in *The Medical Record*, December 10, 1892. The patient gained ten pounds in three weeks after the operation. She became so indifferent about her food that she ate beefsteak, potatoes, fish, fried tripe, bananas and other food difficult of digestion. These were all eaten before the button was voided, and still there was no obstruction. She died February 10, forty-six days after operation, of an acute pulmonary infection. The following is the doctor's report of post-mortem: "I examined the stomach and found the opening into the bowel large enough to almost admit two fingers, and the union absolutely perfect." You will note that the length of time that had elapsed between the time of operation and death was only one day less than in Keen's case, still the opening remained almost large enough to admit two fingers.

Dr. C. E. Ruth, *Omaha Medical Clinic*, September, 1893, comments as follows: "This not only simplifies, but gives an element of certainty in this formerly impracticable operation, that is scarcely believed until seen. Its importance can scarcely be overestimated. The operation has been done successfully on eight persons. You will notice that no such contraction occurred in any of the specimens as that which occurred between the gall bladder and duodenum; in fact none whatever. I have done gastroduodenostomy, cholecystenterostomy, lateral and end to end approximations, specimens from all of which I now show you, and in no case did I fail to get firm union without a fistula or a particle of fecal or gaseous extravasation."

Dr. F. Andrews, of Chicago, in *Omaha Clinic*, September, 1893, says: "It is the means par excellence for establishing a gastric or

fecal fistula. By having a string attached, as soon as pressure atrophy has released the button, it is at once drawn out of the wound, without being allowed to pass through the intestinal tract."

Dr. McFadden Gaston, referring to the button, in *Southern Medical Recorder*, July, 1893, writes: "This device * * * for uniting different structures has now been tested in a sufficient number of cases to afford a reasonable reliance upon its efficacy. The results were entirely satisfactory in the demonstration of the adaptation of the button for anastomosis, and there can remain but little doubt of a communication with surrounding adhesion being accomplished by it, with more expedition than by processes heretofore adopted."

Dr. Hugh Ferguson, Winnepeg, used the button for a case of pylorotomy with end approximation of duodenum to side of stomach, also in a case of cholecystenterostomy, both successful. In a personal letter he writes as follows: "I am more than pleased with the anastomosis button. It is really more than an anastomosis button and should be designated 'Murphy's Intestinal Button.' If a discussion on the button arises at the Pan-American Meeting you may quote these two cases. The button cannot be too soon known."

Dr. W. B. Rogers, Memphis, Tenn., July 30, 1893, writes: "I would say that immediately on my return here I had an opportunity for using your button for the operation of cholecystenterostomy and it worked like a charm."

Dr. R. F. Weir, of New York, writes: "I have used the 'button' for cholecystenterostomy and like its ease of application, though the fatal ending prevented the fullest test being made. The result however was not due to the method but to the case itself, which was neoplasm compressing common duct and engaging both liver and pancreas."

Dr. J. Henry Barbot, (*Pacific Medical Journal*, April, 1893), who used the button in performing a gastroenterostomy, comments as follows: "An anastomosis may be done by this method with perfect safety and with a result that cannot be obtained by any other method. The day of bone plates, catgut rings and numerous other devices, that have been used in performing the anastomosis operations, is past and every surgeon should provide himself with a set of the buttons which does not require an extensive amount of operative skill to use."

In a recent communication Dr. Willy Meyer, of New York, favored me with a report of two successful operations with the

anastomosis button and commented as follows: "In both cases your button worked like a charm, impressing me and everybody present, that, in your ingenious device, we have entered a new era of modern intestinal and gall bladder surgery."

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CHOLECYSTENTEROSTOMY.

DATE.	PUBLICATION.	OPERATOR.	DIAGNOSIS.	OPERATION.	METHOD.	RESULT.		REMARKS.
						Recovery.	Cause of Death.	
1 July 4, '87	Medical News, June 11, '92.	Monastyrski.	Carcinoma head of pancreas.	Cholecystojejunostomy.	Suture.	1		Death 4 months later.
2 " 6, '87	Gaillard's Med. Jour. Aug. '92.	Kappeler.	Tumor pancreas.	Cholecystoileostomy.	" Wölfler.	1		Death 15 months later.
3 Nov. 19, '87	Correspbl. f. Schweiz. Artze 4, '89.	Socin.	Carcinoma pancreas.	Cholecystenterostomy.	"	1		
4 Apr. 24, '88	Correspbl. f. Schweiz. Artze 6, '90.	Fritzsche.	" common duct.	Cholecystojejunostomy.	Elastic ligature	1		
5 " 24, '88	Centbl. f. Chir. 12, '89	Badenheuer.	Cholecystenterostomy.	Cholecystenterostomy.	"	1		
6 " 24, '88	" " " "	"	" " "	" " "	"	1		
7 Mar. 2, '89	Med. Chir. Trans. '90	Robson.	Closure biliary fistula after cholecystotomy.	Cholecystocolostomy.	Suture.	1		
8 Aug. 13, '89	Rev. de Chir., '92.	Terrier.	Occlusion, common duct.	Cholecystoduodenostomy.	Suture & drain tube.	1		Death 1 year later. Influenza.
9 Mar. 23, '90	Path. and Chir. d. Gallenwege, '90.	Courvoisier.	Complications following cholecystotomy.	Cholecystenterostomy.	Suture.	1		
10 Sept. 23, '90	Sammlung Klin. Vorträge, 40, '92.	Korte.	Cholelithiasis obstruction.	Cholecystoduodenostomy.	"	1	After 7 days, Colic lapse.	Second operation, October 3.
11 Jan. 14, '91	Berlin Klin. Woch., 12, '92.	Lindner.	Closure biliary fistula.	Cholecystenterostomy.	"	1		
12 " 16, '91	Deutsche Med. Woch. 9-3, '91.	Sprengel.	Cholelithiasis.	Choleldochoduodenostomy.	"	1		
13 May 21, '91	Samml. Klin. Vort., 12, '92.	Korte.	" obstruction.	Cholecystoduodenostomy.	"	1		
14 Oct. 24, '91	Lancet March 12, '92.	Chavasse.	Closure biliary fistula after cholecystotomy.	Cholecystocolostomy.	Bone plates.	1		
15 Nov. 2, '91	Berlin Klin. Woch., 12, '92.	Lindner.	Closure biliary fistula after cholecystotomy.	Cholecystenterostomy.	Suture.	1		
16 Nov. 16, '91	Deutsche Med. Woch. Feb. 25, '92.	Helferich.	Closure biliary fistula after cholecystotomy.	Cholecystojejunostomy.	"	1		
17 Aug. 13, '92	Bull. et mem. Soc. de Chir., '93.	Reclus.	Cancer of pancreas, probable.	Cholecystenterostomy.	"	1		
18 " 23, '92	Wien. Klin. Woch., Jan. 19, '93.	Frankel.	Closure biliary fistula.	Cholecystenterostomy.	"	1	After 10 hours.	
19 Sept. 21, '92	Wien. Klin. Woch., May 11, '93.	Gersuny.	Cholelithiasis obstruction.	Cholecystogastrostomy.	"	1		
20 " 21, '92	Band III. Klin. Chir., IX., p. 2, '92.	Czerny.	Closure biliary fistula after cholecystotomy.	Cholecystenterostomy.	"	1	Exhaustion.	
21 " " " '92	Band III. Klin. Chir., IX., p. 2, '92.	"	Occlusion.	Cholecystocolostomy.	"	12	12 weeks hæmorrhage.	Temporary recovery.
22 " " " '92	Band III. Klin. Chir., IX., p. 2, '92.	"	" tumor.	Cholecystoduodenostomy.	"	1		
23 Jan. '93	Boston Med. & Surg. Jour., March 23, '93.	Jones.		Cholecystenterostomy.	"	1		
24 Feb. 1, '93	Amer. Gynec. Jour. June '93.	Ross.		Cholecystoduodenostomy.	Elastic ligature	1	137 days, continuous hæmorrhage.	

CHOLECYSTENTEROSTOMY.

DATE.	PUBLICATION.	OPERATOR.	DIAGNOSIS.	OPERATION.	METHOD.	RESULT.		REMARKS.
						Recov	Death	
1 June 11, '92	N. Y. Med. Rec. Jan. 13, '94	Murphy.	Cholelithiasis.	Cholecystoduodenostomy.	Murphy button.	1		
2 Oct. 19, '92	" " " "	"	"	"	"	1		
3 Nov. 23, '92	" " " "	"	"	"	"	1		
4 Dec. 18, '92	" " " "	"	"	"	"	1		
5 Jan. 31, '93	" " " "	Murphy.	"	"	"	1		
6 Feb. 20, '93	" " " "	Lee.	"	"	"	1		
7 Apr. 6, '93	Jour. Am. Med. Assoc., Aug. 26, '93.	Mayo.	Obstruction of common duct.	"	"	1		Patient 71 years old.
8 Apr. 28, '93	Medical Arena, Kansas City.	Foster, W. D.	Gall bladder fistula, obstruction of choledochus.	"	"	1		Fistula closed without operation.
9 May 6, '93	N. Y. Med. Rec. Jan. 13, '94	Murphy.	Cholelithiasis, occlusion common duct.	"	"	1		
10 " 22, '93	" " " "	"	Cholecystitis, impaction.	"	"	1		
11 June 1, '93	" " " "	Fabrique.	Hepatic colic, "	"	"	1		
12 " 1, '93	" " " "	Rogers.	Closure biliary fistula after cholecystotomy.	"	"	1		
13 July 18, '93	" " " "	Hartmann.	Cholelithiasis.	"	"	1		
14 Aug. 3, '93	" " " "	Ferguson.	Dropsy, gall bladder.	"	"	1		10th day removed button through fistula.
15 Sept. 20, '93	" " " "	Lane.	Cholelithiasis.	"	"	1		
16 Oct. 20, '93	" " " "	Luken.	Cholelithiasis, obstruction common duct.	"	"	1		
17 " 26, '93	" " " "	Hartmann.	Cholelithiasis, obstruction cystic duct.	"	"	1		
18 Nov. 7, '93	" " " "	Murphy.	"	"	"	1		
19 Jan. 6, '94	Unpublished.	Dunn.	" obstruction common duct.	"	"	1		Button passed 18th day with 26 stones. Two 3/4 inch stones removed.
20 Feb. 13, '94	Unpublished.	Murphy.	Cholelithiasis.	"	"	1		
1 March '93	N. Y. Med. Rec. Jan. 13, '93	Wier.	Cancer of pancreas liver omentum and gall ducts.	Cholecystenterostomy.	"	1		Exhaustion. Perfect approximat n.
2 May '93	" " " "	Murphy.	Cancer of duodenum, gall ducts, liver.	Cholecystojejunostomy.	"	1		14 days, ileus, from volvulus, loop of jejunum twisted upon itself.

RECENT INVESTIGATIONS OF THE THERAPEUTIC VALUE OF INJECTIONS OF ORGANIC FLUIDS, ESPECIALLY SPERMINE, IN STERIL- IZED SOLUTIONS.

By G. E. KRIEGER, M. D., CHICAGO.

Some five years ago the eminent physiologist and neurologist, Brown-Sequard, established the fact that the testicles of young animals contain chemical substances of high dynamogenetic properties, and since then a great many scientific investigations have been made in order to reveal the character of these agents. The novelty of this discovery led, at first, to very different criticisms, and the prevailing incredulity that anything could exist which would be of such remarkable power as claimed by the author, rendered the majority of the profession unquestioning opponents of the new doctrine. The announcements of Brown-Sequard regarding injections of testicular juice on patients suffering from nervous and functionary debility, were ridiculed and frequently, without examination, Brown-Sequard's statements were flatly denied.

The efforts of the inventor of this method could not prevent that advantage was taken of the fact that some failures and septic accidents occurred, probably due to a lack of asepsis in the preparation of the remedy, or during its application, and for quite a while his method seemed to be condemned as well by the public as by the profession.

However, reports of other experimenters became more and more encouraging, and what first had been looked upon as a worthless idea of an enthusiastic head, is to-day considered a discovery of the greatest therapeutic value. In fact, the remarkable results obtained in some nervous affections, which previously were irremediable, have made the subject worthy of the most careful investigation.

In 1878 the German chemist, Phil. Schreiner, as described in the *Annals of Chemistry and Pharmacology*, found by analysis in testicular juice a substance called spermine, which, at first, by other chemists was declared identical with aethylenimin. Later, however, by the ingenious researches of Prof. Alexander Poehl, in St. Petersburg, it was proven that spermine is an organic base with characteristic properties, and that it can be prepared from

almost any organ, especially the various reproductive glands of animals.

Prof. Poehl's first publication of these investigations before the St. Petersburg Medical Society, in 1890, was received with great interest by the Russian and German profession, and was soon followed by clinical experiments of noted medical men, who all agreed that spermine is the active principle of Brown-Sequard's fluid and, as a stimulant, a therapeutic of unlimited value.

Such prominent physicians as Dr. Rotchinin and Prof. Tarchanow, in St. Petersburg, have reported a great number of cases treated successfully with spermine injections.

From these and many other experiments, Dr. Rotchinin came to the following conclusions: The effect of spermine injections is that of a strong stimulant, and corresponds with those obtained by injections of Brown-Sequard's fluid. It has, however, several advantages over the latter: 1. No danger of local inflammation, as frequently observed after the use of Brown-Sequard's fluid. 2. No fever or other symptoms caused by septic elements. 3. Equality of concentration of the fluid administered.

According to Prof. Tarchanow's investigations, a direct effect of spermine injections upon the blood's circulation has been observed. The action of the heart is greatly retarded, and the height of the pulse wave and its strength, as shown by the sphygmograph increased five times, and even more. These phenomena are explained by the stimulation of the nervous centers, especially the heart ganglia and the vasomotor nerves. Doctors Sicharew and Hubbenet, in the St. Petersburg Kalinkin Hospital, reported the following interesting case:

A woman twenty-nine years old, who suffered since thirteen years with syphilis, was treated with blue ointment for six years. She became very anemic; had at the time three ulcers on her forehead, two of which affected the bone; on the right radius periostitis gummosa, which made the movement of the hand very painful; inflammation of the right knee joint, which was greatly swollen; periostitis of the right tibia; edema of the lower limb and foot; movability of the right knee joint but fifteen degrees; gait very uncertain, digestion poor, frequent diarrhea, pulse weak. In this condition the patient was put under the treatment of spermine injections. The pulse, strength in the right hand and general feeling improved after the second injection. Pain of the right wrist decreased, edema of the leg disappeared, and even the movability of the knee was restored almost to the normal condition after five in-

jections. The pulse, 106 before, fell to 86. The digestion became normal, and the muscular strength increased about fifty per cent within ten days.

Another startling effect was obtained by Dr. Prochorow, on a man who suffered from chronic ulcers of the lower leg, and who had been treated for several months in a hospital without success. After the second injection the ulcers commenced to heal, and within three weeks the patient was cured. From these and a great many other results, published by competent authors, one is justified in concluding that spermine has doubtless some dynamogenetic power, and it remains to be explained what function it has as a normal factor of the organism.

We know that by the chemical change of material some products originate which are poisonous to the system and are, therefore, by the aid of some glandular organ, discharged from the circulation. Without doubt such poisonous products must have antagonists which render them comparatively harmless during their presence in the body, and in this way prevent auto-intoxication. Therefore such agents are of substantial importance to the system. In an average healthy organism a physiological balance is observed between these two chemical opponents. If the noxious products increase or the stimulating agents decrease, it means a lack of resistance and strength; a disposition to disease. If, on the other hand, the stimulating agents are predominating, it means vigor and health. If such be the case why should it not be possible, by the introduction of such stimulating agents into the system, with which the organism defends itself, to overcome the lack of resistance brought on by any cause detrimental to health.

The difficulty, of course, will be to prove that the substance artificially obtained is identical, or at least similar, to those prepared in the organism. It is not very long ago that Charcot and Leyden made the discovery that in certain diseases on the surface of the lungs, spleen and other organs, small crystals appeared, the significance of which was not understood until later examinations revealed their chemical composition. The crystals found especially in asthmatic persons, and known as Charcot-Leyden crystals, are nothing else but phosphate of spermine. These crystals have also been found in the discharges of persons with typhoid, consumption, cholera, in leucemia and other diseases. By their discharge from the circulation, the organism of such patients evidently lost a quantity of spermine, and therefore such stimulation to the nervous centers as would be necessary to check the power of weaken-

ing elements. The evidence of the chemical relation between these crystals and spermine led to the treatment of asthmatic persons with injections of spermine, and as anticipated, generally with good, sometimes with excellent success. Lately I treated a case which greatly improved after ten injections. There can, therefore, be no doubt that spermine has a stimulating effect upon those centers to which asthmatic attacks are attributed.

Not less remarkable results were obtained in cases of neurasthenia and anemia. Prof. Sicharew¹ reported several cases of severe neurasthenia, with agrophobia and claustrophobia, those strange phenomena in persons who become dizzy and nervous while being in a wide field, and who feel frightened when inclosed in a room, in which cases these symptoms disappeared after injections of spermine. In another case of severe anemia, in which the person had nine or ten hysteric spells daily, suffered from insomnia and great weakness, perfect cure was obtained. An old gentleman, sixty-three years of age, with general debility, apathetic to his surroundings, unable to follow a conversation, or to move about, improved so much that he could walk alone and grew stronger physically and mentally.

A special effect seemed to be obtained by spermine upon the spinal plexus; quite a number of cases of locomotor ataxia have been reported in which either a perfect and lasting cure, or at least, a great improvement was the result of spermine injections.

A patient of Dr. Sicharew², fifty-three years old, with myelitis of the lumbar part of the spinal cord, causing paresis of the lower extremities, incontinence of urine, constipation and loss of sexual energy, recovered after nine injections.

To quote from the statistics of 182 cases recently published in the *Berlin. klin. Woch.*, an exceedingly good effect was secured in fifty-two cases of neurasthenia. Only two did not show an improvement. From fourteen cases of locomotor ataxia, twelve, from twenty-three with other nervous troubles, twenty-one improved; also fifty-seven with general debility, nine with scorbutus, fourteen with consumption, have shown a favorable effect.

Very much interested by all these reports, I have made this subject a special study for over a year and have investigated the therapeutic value of spermine on my patients. To have sufficient material without depending on the Russian drug, which is very expensive, about two dollars a dose, I have experimented for four-

¹*Berl. klin. Woch.*, No. 40, 1891.

²*Petersburg med. Ges.* February 26, 1891.

teen months in my laboratory, fitted up for the purpose of securing an equally effective substance, and finally succeeded in getting the specimen I wished to obtain. I also, by the courtesy of Prof. Poehl, in St. Petersburg, with whom I communicated, obtained possession of a quantity of his preparation, which I used to compare the effects obtained from his spermine and from that prepared by myself. The result was equally favorable in cases selected for this treatment. I have since been supported in the investigation of the therapeutic value of my product by other gentlemen who are present to-night, and now take occasion to introduce to your notice several patients who have been successfully treated by spermine injections.

CASE I. Mrs. H., thirty-nine years old, five feet, three inches high, very stout, weighs 190 pounds. Has always menstruated regularly, but generally with great pain, was married sixteen years ago, has two children. For the last two years she has suffered from abdominal and lumbar neuralgia, for which she was repeatedly treated, without success. The abdominal organs are in normal condition. Patient had also frequent palpitations and neuralgic pain of the heart, was very irritable, nervous and easily frightened; could not sleep well, and complained of frequent headaches. In this condition she came to me three weeks ago. Taking the symptoms described as caused by general neurasthenia, I advised her to be treated by spermine injections. After one injection of a ten grain spermine solution she felt easier and quieted. She received one dose daily for nine days, during which she evidently improved. On the fifth day she stated that all her ailments had left her, and her husband claimed that she had changed remarkably. It is now twenty days since the first injection was given, and for the last two weeks the patient has felt perfectly well.

CASE II. This gentleman, who is seventy years old and, as you see, in apparently very good condition. He was never sick up to his sixty-fifth year; in 1889 he had an attack of inflammatory rheumatism; in 1890 was treated for gravel in the bladder, which disappeared after the use of lithia water; and for the last four years has complained of neuralgic pain in the head and lumbar region, heaviness in the legs, general weakness and insomnia. I attributed these symptoms, naturally, to his advanced age, and thought spermine would refresh him. The injections, given as usual in the back, affected him in a peculiar way. He claimed to feel them all through his chest as a warm, stimulating agent, and soon assured me of their good effect upon his general health. The neu-

ralgic pain in the back and weakness in the limbs disappeared, his sleep and strength improved, the headache became less, and he says he feels twenty-five years younger.

CASE III. Of special interest, I think, is another case which I would like to present, and about which I would be glad to hear the opinion of some gentlemen who make diseases of the nervous system a specialty. From the most apparent symptoms, I may call it a case of spinal sclerosis, but it seems to me that there are also other atrophic processes, possibly of cerebral nature. As far as I could learn, the history is as follows: The patient, a man fifty-seven years old, five feet ten inches tall, weight 230 pounds, was always in good health up till March, 1893. He did not indulge in alcoholic drinks, never suffered from syphilis, but was a heavy smoker. In March, 1893, he complained of slowly growing weakness in the right, later in the left, leg. His limbs felt as if burdened by weights. Then a constant dizziness in the head set in. He was treated for apoplexy, with no effect. The weakness in his legs progressed until they would not carry him. His dizziness also grew worse; he became irritable, nervous, could not sleep, but had fair appetite and digestion. He was under the treatment of several physicians, the last of whom, suspecting the disease was of syphilitic origin, put him under inunctions and iodide of potash. The patient lost about thirty pounds. His condition, however, did not improve, and when I saw him first, on February 6, I found the following condition:

A man, strongly built, sat in an arm chair, his features showed signs of despair, his eyes were clear but unsteady, he was unable to rise or even to raise his legs, but could move his arms pretty freely. His grasp was weak, and the movement of the hand and arm somewhat incoördinated; for instance, when he wanted to reach for something he failed to strike it. The fingers spread apart, trembled; at the tips and under the sole he had a numb and prickling sensation. He was free of pain, but complained of a heavy and dizzy feeling in his head. Pupil reflex was good. When lifted from the chair he could stand, his legs spread apart about eighteen inches. With closed legs he tumbled. He also became very uncertain with his eyes closed. Supported on either side, he tried to walk; the legs were moved with difficulty and incoördinately; the feet were swung forward and set down with force; brought back to his chair he felt very tired. The sensibility of the skin and reflex of the patella was but little disturbed. The functions of the bladder and rectum have lately become weak, the

patient has frequent inclination to pass urine, the examination of which showed nothing abnormal. Examination of the eyes showed atrophy of the left optic nerve. For the last two months he has been unable to lie down; was obliged to sit up all night, and compelled to sleep in his chair. He also complained of an almost constant ringing noise in his ears.

In this condition I subjected him to a treatment of spermine injections, with the following effect: After five injections he could easily rise and stand with his heels and toes together. He had fifteen injections altogether, and is now able to walk fairly well, even to climb stairs with some effort. He feels a great deal stronger, can lie down and sleep sometimes all night. During this treatment I avoided any other therapeutic aid. The only symptom that still annoys him is the dizziness in the head, to which he pays the more attention since being relieved from the confinement to his chair.

On these, and quite a number of other cases, I have studied the effect of spermine injections, and have had in some of them surprisingly good results, while the rest were more or less favorably affected. One feature I would like to emphasize; spermine seems to be a direct antidote against the bad effects of anesthetics, probably due to the stimulation of the heart's action. In 1891 the Russian surgeon, Weljaminoff, and recently I also have observed that patients who received one spermine injection shortly before an operation had a splendid narcosis, and no nausea or any other bad effect after they awoke.

In order to ascertain if this condition was really obtained by the action of spermine, I have experimented in the Chicago Hospital on a patient who had to take ether several times. He was a man of thirty-nine years, upon whom I was going to perform Lange's or Whitehead's operation for hemorrhoids. He received a fifteen grain spermine injection shortly before the anesthetic was given. He was one hour and a half under the influence of ether; had a splendid narcosis, and when he awoke felt perfectly well. Eight days later I gave ether to remove the stitches without using spermine. He then was only fifteen minutes under the influence of the narcotic, but it took him all day to overcome the nausea and bad feeling with which he awoke. It is, of course, a question in how many cases such a favorable effect will be obtained, and I do not doubt that frequently the injections may fail to act as desired, but still I think it may be worth trying.

Before I conclude I wish to say a few words about the chemi-

cal and physiological properties of spermine. Spermine, according to the analysis of Phil. Schreiner, *Ann. Chem. & Pharm.* 1878, p. 194, is a substance with the chemical formula, $C_2 H_5 N$. Like other bases it forms salts when in contact with acids or metals. Some of these salts are long prismatic crystals which, though prepared by chemicals, retain the physiological properties that spermine possesses. Such crystals I have photographed from microscopical specimens; the specimens were obtained from preparations from different organs: No. 1, from testicles of a young bull; No. 2, from ovaries of a young cow. Numbers 3 and 4, prepared in a different way, are not as pure as the first ones; No. 3 is made from a small quantity of genuine Brown-Sequard fluid; No. 4, from an extract of pancreas. Regarding the chemical composition, spermine belongs to the group of the imins, and has at first by some chemists been taken for aethylenimin, which has the formula $C_2, H_4 NH$; that is, the same elements, but in another group. By the investigations of Prof. Poehl this opinion has been proved to be a mistake. He found that spermine is a base per se, with certain characteristic properties different from other substances, with equal elements. Some of its reactions are: 1. With chloride of gold it forms a yellow precipitate, which later changes into flat crystals. 2. With chloride of platinum it forms a crystalline precipitate. 3. With tungstate of sodium it gives a cloudy precipitate soluble in alkalis, insoluble in acids. The most characteristic property is a smell like human sperma, if spermine is brought in contact with chloride of gold and metallic magnesium.

I have here a sample of such combinations, and you may convince yourselves that my preparation really contains spermine. It was for these reactions that I worked over a year and made many thousands of experiments; after which I learned to understand why such a noted firm as Merck & Co., pronounced in the *Pharmaceutical Zeitschrift for Russia*, in 1890, that they did not succeed in preparing this valuable substance. The same statement has been made by other chemical firms; and I think this is the reason why, up to date, spermine has not appeared in the list of our modern therapeutics. Prof. Poehl himself said, in the *Berlin. klin. Woch.*, 1891, "The conditions by which spermine crystals may be obtained from solutions which contain spermine, are sometimes very difficult to determine;" and I also have found that, when I repeated the same process on the same preparation, I would at times not obtain the same crystallization as previously found.

Regarding the physiological action of spermine, chemical and

physiological experiments have revealed the fact that the stimulation and otherwise beneficial effects from spermine injections are very natural. Since it is known that spermine is not only an important factor of the reproductive glands in the male and in the female organism, but also exists in the thyroid gland, the thymus, pancreas, spleen and other organs, it has become evident that spermine is a normal substance circulating in the blood, which has to and does accomplish a certain task in the economy of life. Medical science was greatly mistaken when it was believed that some organs, as the spleen, subrenal glands and others, were of no use in biological respects, and could just as well be parted with. By the bad effect obtained from the extirpation of the thyroid gland, we have been convinced that in this, as in other glands, a substance is produced which is absolutely necessary for our system, and which is probably similar to spermine; and so, I believe that an important function of those organs is the production of spermine. The fact that male animals deprived of their sexual glands in their early days, cannot compete in strength with their brothers who are still in possession of these vital organs, has led to the interesting experiment on dogs to inject spermine as a substitute. Of four young dogs, all brothers, two treated this way, after being castrated, grew twice as large and strong as the other two. The incorporation of such substances as are produced in our glands into the blood, is therefore a very natural support of a physiological process.

The manner in which spermine acts upon the organism has been carefully studied by Tarchanow, Poehl and others, who are of the opinion that the stimulative effect of spermine is due to its great oxidizing power. This theory is supported by the following facts :

1. Metallic magnesium in solution of the chloride of a metal changes into oxide of magnesia, by the influence of spermine already in very small quantity.
2. The blood, if influenced by chemical agents which diminish its oxidizing power, as chloroform, oxide of nitrogen, strychnia, urea, can be brought to its normal condition by the support of spermine. This explains the favorable effects of spermine injections during and after narcosis.
3. A direct test for the oxidizing power of spermine was obtained by quantitative examination of the urine before and after spermine injections, which showed a stronger oxidation of the albuminoids after the injections.

From these facts it does not seem strange that in diseases which diminish the oxidizing energy of the blood and nervous system, as in neurasthenic, anemic, cachectic persons, spermine injections have a very favorable effect. The same observation has been made in auto-intoxications; that is, in diseases where the products of the regressive albumen metamorphosis accumulate in the organs.

A very important factor for the effect of spermine is the alkalinity of the blood. As a rule in all the diseases named, as well as in acute fevers, as typhoid, scarlet, pneumonia, erysipelas, the blood possesses a high degree of acidity, in which spermine becomes insoluble and therefore inactive. If the acidity is neutralized, as for instance in diabetes, by the use of Carlsbad salts, the spermine regains its activity and the improved oxidation causes the disappearance of sugar in the urine. The same result has been obtained without alkalizing the blood by artificial introduction of spermine. As the latter is a normal substance of the organism, its application is an imitation and support of nature, and therefore entirely harmless if used under certain precautions.

It is *different from Brown-Sequard's fluid*, inasmuch as the latter contains a number of substances, as kreatin, kreatinin, hypoxanthin, lecithin, guanin, nuclein, and so on, which do not benefit and may hurt. Furthermore, as it is known that the organs from which the emulsion known as Brown-Sequard's fluid is obtained, often contain the germs of disease, and as other products, the toxines, cannot be eliminated in the way the fluid is prepared, the injection of this fluid is in a strict sense of asepsis, not a safe method. The injections are sometimes followed by an abscess, an accident that has recently occurred in this city, even in the hands of a physician of very high standing, a complication I have never observed nor seen reported after spermine injections.

The isolation of the active principle is therefore of vital importance, and has besides the advantage that the dose can be regulated, which is impossible in Brown Sequard's fluid, because no one can tell how much spermine it contains. The solution I use is equal to 2 per cent, and is always bacteriologically tested before being put in flasks, so I am sure it is aseptic; and although I do not claim that it will have the desired effect in every case, on the contrary am fully prepared to see occasionally a failure, I think the subject is worth study.

As far as the technique is concerned, I have found it advisable to use a series of from ten to fifteen injections, one a day; commencing with small doses, about 5 to 10 minims, and gradu-

ally increasing the dose to 20 minims. The number of doses required is, however, a matter of personal judgment, and sometimes two or three injections are sufficient to secure a remarkable effect.

In order to keep this solution perfectly aseptic I have put up single doses in separate flasks, like the one shown. They are opened by striking the neck, which will break at the mark. The fluid is then taken out by a hypodermic needle, which should always be thoroughly cleansed before and after using. The most aseptic instrument for the purpose is a syringe with a piston of asbestos. It seems practical to inject very slowly after the skin has been thoroughly sterilized. With these precautions I have never had any trouble, except slight local irritation.

In conclusion, I wish to recount the different effects obtained by spermine injections in various diseases treated by other physicians and myself.

1. The action of the heart is stimulated.
2. The respiration becomes easier, more regular and less frequent.
3. The general feeling improves.
4. The muscular strength increases.
5. Sleep and appetite improve.
6. Edema, due to lack of power in the arterial system, disappears.
7. Sugar in the urine decreases.
8. Ataxy of muscles, especially caused by spinal troubles, decreases.
9. Neuralgia, especially of lumbar origin, disappears.
10. The sexual functions are stimulated. This may be taken as a result of general improvement, but in my estimation, should not be considered a specific effect.
11. The functions of the bladder, kidneys and intestinal tract improve.
12. Local reactions are either of a slight and harmless nature, or do not happen at all.

Although such favorable results have been recorded in hundreds of cases, I do not wish to say that they will always be obtained, and we have to be prepared in some cases to miss the desired effect. The exceptions, however, do not speak against the method as a whole, but rather, as the Latin phrase says: "*Exceptio firmat regulam.*"

TREATMENT OF TYPHOID FEVER.

By ELMER LEE, A. M., M. D., CHICAGO.

Recognition of the value of internal and external cleanliness represents the most practical discovery in treatment during the present generation, and, at the same time, it constitutes one of the really great discoveries in the history of medicine. The application of the principles of cleanliness more nearly meets the requirements of a real advance in curative medicine, than all the other propositions known to the profession for the cure of disease.

The symptoms of typhoid fever are too well known by all to need particular mention; the question of burning interest is what to do to be saved. The disease is produced by drinking contaminated water, and its seat of development is situated in the intestinal canal. There is a poison there which if it could be removed before it had become absorbed into the blood, life, and even health would be spared. Allowed to remain, the poison is drawn into the circulation, and very soon the whole body feels the depressing effect. Even at this time, if those remaining poisonous juices and germs which are contained in the bowels were either neutralized by suitable remedies, or washed entirely away by a stream of flowing water, the disease would be checked, the patient spared, and health restored.

Without waiting for development of the symptoms of typhoid fever, the very first proposition is to make the patient surgically clean, which means the free and abundant use of water internally first, and externally afterward. The bowels are drenched and cleansed by a copious douche of hot soapy water, made to pass in and out of the lower bowel, until the contents are cleared away and the returning water comes back as clear as before it entered. The relief to the sick person by following such ablution is a delight to the physician and of greatest comfort to the patient. It seems so reasonable, they will say, and in practice it is just as good as they say. Fears were formerly entertained by me, as they are to-day by some of my cotemporaries, that something will be bursted by running a large volume of water into the bowels of persons sick with typhoid fever. No harm has ever been done, and neither is it likely to be so caused. Several hundred cases have been so deluged by me with large quantities of water, and in no instance has the result failed to be beneficial. The fear of doing harm may be entirely and forever dismissed. That which is not well understood

by any one, always seems inconvenient, or troublesome to perform. But a little practice makes easy the methods which a little while before appeared so unpleasant and even hard.

The temperature of the water used for cleansing and washing the bowels should always depend upon the temperature of the body. If there is a high fever the water is more agreeable and useful to the patient when it is cool, viz., 75°; but if the patient is chilly, or has a low temperature, the water should be at blood heat, nearly 100°. During the first week of illness the irrigation of the bowels should take place in the morning and again in the evening of each day. After this, one douche of water should be given each day until convalescence. The coöperation of the patient is readily accorded. The treatment takes hold of his reason, which lends both hope and help to the management of the case.

Bathing of the body is performed at regular intervals and by such a system as may be convenient and suitable to the individual. The bath tub may be used when patient is strong enough to be assisted to it, where otherwise, sponging with cold water is very refreshing and useful to maintain strength and lower the heat of the body. The most affective and most lasting influence is secured by wrapping the patient in a wet sheet. Two blankets are spread on the bed, covered with a sheet wet with cold water. The patient is wrapped in the sheet, and then folded quickly and completely in the blankets. The time during which the sick one may remain in the wet pack is from one-half to one hour, or even longer if he is comfortable. Bathing opens the pores of the skin and through them the system discharges a part of the hurtful waste of the body. This bathing should be continued, several times daily, during the disease and during convalescence.

The internal treatment is uncomplicated, safe and useful. The basis of it is cold water, and always plenty of it to drink. Water cools the body and assists to cleanse it of the poison which makes it sick. The elimination is carried on through the intestinal canal, through the kidneys, through the lungs and by the skin. Let the sick have water; it can do no harm, in any case; water only does good. What cruelty it was in fever cases to keep water from them, and what suffering it caused. A tablespoonful of Marchand's peroxide of hydrogen, is added to each glass of water. It is the best and most simple remedy that can be given that is likely to be of benefit in helping to cure typhoid fever. Continued for a few days, it is then laid aside for a few days, and glycozone substi-

tuted in its place, both as a relief to the patient and for the beneficial effect of the remedy itself. And so on in this way the two remedies are alternated, which is found by me to be the best arrangement for administering these valuable antiseptics. The preparation, glycozone, is chemically pure redistilled glycerine in which ozone, or concentrated oxygen, has been incorporated, and can be taken with as much freedom and safety as pure glycerine. The glycozone may be taken in doses of half a tablespoonful to a glass of water as often as water is taken during the day. When it is desired to allay nervousness and induce sleep, sulphate of codeine is used, in doses from one-half to one grain, by the mouth, or one-quarter to one-half grain by the hypodermic method. This remedy tranquilizes the nervous system and induces sleep, and should be administered at night.

The typhoid fever patient receives as food, whatever is simple, at regular intervals of four hours. Milk, simple natural milk, is nourishment of the highest importance. One egg every day, or every other day, is alternated with a small tea cup of fresh pressed juice from broiled steak or mutton. The egg is pleasant to take and more nutritious, when whipped until it is light and then stirred with a small glass of milk. For a simple and nourishing artificial food, malted milk is always good.

The juices of fruits are delicious to the typhoid fever patient, and are not to be dismissed on the supposition that they are injurious. It is always interesting to observe that, when the fever is broken, and convalescence is beginning, water in copious draughts is no longer easy for the patient to take. When the usual glass of water is handed back half drained, it is an encouraging sign of beginning restoration. For wholesome drinking, fresh lake water which had passed through a Pasteur porcelain filter is entirely reliable. The Jewell apparatus for distilling water for family use is a new and useful invention for the home, which has lately been brought to my notice.

The simplicity of the foregoing plan meets with every requirement, and saves nearly every case, unless there is some complication. It is my belief that doing more than this is doing less, and less than this which is so simple, is not enough. The profession agrees that no kind of drug treatment is useful or curative in typhoid fever, indeed, one of these days, in my opinion, the statement will be considered applicable to other, if not all, cases of diseases of the bowels.

The plan as proposed by me and practiced during a period of

five years, consists, in review, of the following systematic management in typhoid fever:

Water used internally as a douche for free irrigation of the bowels, either simple or made soapy with pure liquid soap. Water as a drink, and as a remedy taken copiously and frequently, especially during the stage of fever. Water is indispensable, and should be given as often as it is desirable and agreeable to the circumstances of the case. Frequent application of cool water to the surface of the body during the entire illness.

Remedies: Peroxide of hydrogen, (Marchand's), or glycozone for the antiseptic effect of the oxygen which is set free in the stomach and intestines. But to be of real value, these remedies are to be taken in considerable quantity largely diluted with water, else, in my opinion, they are of little use. The capacity of the bowels is so great that a little of anything cannot spread over enough of this enormous area to effect it beneficially. Cleanliness is the principle governing the use of peroxide of hydrogen and glycozone.

For a remedy that soothes and brings sleep at night, sulphate of codeine is better than chloral, and besides it is the safest and best.

For food, anything that is simple and in liquid form; milk is always the best; milk and whipped eggs; pressed juice from broiled meat, the juice from fresh, ripe fruit. The nutrition taken should be at regular intervals, four hours, that sufficient time may be allowed for digestion.

Stimulants and drugs are injurious without exception, and better results are secured without their use. Typhoid fever, generally transmitted through the drinking water, is a preventable disease. It affects all classes, but if food and water were always pure, no class or age need contract typhoid fever. Cleanliness everywhere and always is the means at hand which makes it possible to escape typhoid fever, and other diseases of the bowels. Internal cleanliness as well as external is a reasonable proposition of hope for the cure of the unhappy multitude of sick and discouraged humanity.

THE
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Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH,
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held at the Schiller Club, February 15, 1894.

Vice President Moyer occupied the chair.

The Committee on Membership reported favorably on the applications of Drs. F. G. Mason, 163 State Street; J. O'Neill, St. Joseph's Hospital; W. S. Downey, 550 Jackson Boul.; Paul R. Welker, 435 Center Street, and E. B. Hutchinson, 5501 Monroe Avenue; and, on motion, the Secretary cast the ballot of the Society for their election.

The applications of Drs. E. G. Earle, F. S. Churchill, Josiah Jones and E. J. Senn were read and referred to the Committee on Membership.

Dr. D. R. Brower addressed the society briefly on the subject of "Medical Expert Testimony" and on his motion the chair appointed Drs. J. B. Hamilton, Richard Dewey and Henry M. Bannister as a committee to meet similar committees from the various societies with a view to making suggestions relative to legislation in the matter of medical expert testimony.

Dr. W. E. Quine moved that the Secretary be instructed to procure a certified copy of the Coughlin trial and that a discussion of this trial be made a special order of business at the next ensuing meeting.

On motion by Dr. Hamilton, Dr. Quine's motion was tabled.

Dr. Brandt gave notice that at the second ensuing meeting he would move to take Dr. Quine's motion from the table.

Dr. CARL BECK reported:

TWO REMARKABLE CASES OF APPENDICITIS,

and exhibited the patients. Dr. Beck also exhibited a patient with

EXTROPHY OF THE BLADDER AND HYPOSPADIAS.

Allow me to exhibit two patients on whom I have performed an operation for appendicitis some time ago. I will explain in what way they are remarkable.

This man came under my observation four months ago, when I saw him in consultation with Dr. Habenich of this city. He offered at that time the appearance of grave sickness consisting mostly of symptoms from his lungs. He had been ill for six years, suffering from cough, expectoration and other symptoms all indicating that there was disease of the lungs. All the physicians he had consulted up to that time, among them Dr. Ingals, had been of the opinion that this man's sickness was located in his lungs, and was the beginning of consumption. When I was called to see him he complained only of very little pain in his abdomen. He had none other of the symptoms designated as being characteristic of appendicitis; he complained of constipation, which would not yield and which in connection with the lung symptoms indicated that there might be some trouble in his intestines, most likely tubercular.

On examination of his right lung I found the apex infiltrated. He had tubercular disease of this right apex, but the constant constipation led me to examine his bowels more closely, and I introduced two fingers, and later three into the rectum, and found a tumor protruding from the side of the pelvic wall toward the rectum. This tumor was closely connected with the pelvic wall, and on the border of the tumor I could produce, with my finger, a small pit which I could feel whenever I went over the surface again, indicating an edema, a symptom that I would call characteristic of the presence of pus, if pain is present. The tumor was very tender. I decided it was a collection of pus in the neighborhood of the appendix and concluded to operate. We found on incision a large appendix which was necrotic and only by adhesions on the anterior wall, in connection with the cecum. Around this appendix was an infiltration extending downward. I removed

the appendix and drained this cavity, and since then the man has gained very much in weight, and is able now to do work that he has not been able to do for a long time. The case is remarkable first from the standpoint of diagnosis. He had not one symptom that is usually thought to be characteristic of appendicitis except slight pain; he had no fever, no vomiting, no tumor that could be made out by simple palpation or percussion. He had no other symptoms except that of the very much surer symptom of an intumescence palpable through the rectum. Since that time I have examined every case of appendicitis that came under my observation, and have been able to demonstrate this intumescence and local edema, whenever pus was present. The other point of interest is the coincidence of the tuberculosis with appendicitis.

I have brought here another case with similar symptoms, a little girl. This case was operated upon at the same time as the man. In this case there was another complication, the abscess from the appendix was in communication with the bladder. The constant discharge of pus from the bladder led us to believe that there was an accumulation of pus in the neighborhood of the bladder, and upon examination we found an appendicitis. She had fever and a tumor that could be diagnosed by percussion and palpation, and she had a history of becoming sick shortly after eating a large quantity of grapes. In this case there is a small hernia, which will perhaps be the subject of correction later on.

I have to exhibit a third case, which is one of extrophy of the bladder in an infant. It is very interesting inasmuch as the extrophy of the bladder is here total and we can see the ureters discharging urine. The child is two weeks old. The bladder goes directly over into the urethra, which is entirely open, forming an abnormality which is called epispadiasis. This case will be operated upon when the child is older.

STENOSIS OF THE LARYNX AND TRACHEA.

Dr. E. FLETCHER INGALS presented the history of a young woman twenty-two years of age who came under his care for stenosis of the larynx and trachea.

Five years previously she had been on the point of suffocation from the pressure of a large goitre, when tracheotomy had been done by Dr. Senn, and artificial respiration established, which had saved her life. Dr. Senn had at that time removed a wedge shaped piece of the thyroid and opened the trachea with the thermo-cautery. He had then introduced as a tracheotomy tube

a new device of his own which possessed some advantages over the ordinary tubes. This tube consists of a curved silver tube about one-quarter of an inch in diameter, and two and one-half inches in length, which was placed inside a rubber tube of the same caliber, and about five inches in length, but which might have been either longer or shorter, according to the indications in the special case. The silver tube maintained the proper curve, and the whole was easily retained in the trachea. This tube while in position, was cleansed by the patient by means of a feather, or after it had been worn for a few weeks it could be removed and cleansed, the patient having a similar tube to insert immediately after its removal to prevent contraction of the wound and trachea. The enlargement of the thyroid had practically all disappeared.

The patient had been referred to Dr. Ingals during the past summer by Prof. Senn, whom she had consulted at the Presbyterian Hospital, on account of inability to speak, or to breathe through the mouth. Dr. Ingals found complete closure of the lower portion of the larynx between the cords and the tracheal wound. Finding a cicatricial tissue so firm that it could not be torn, he passed a forceps down upon it from the mouth and cut down to the instrument from the external wound. The cicatricial tissue was very tough and about six millimeters in thickness. It was cut away upon the sides with the punch forceps, which had been devised for this special purpose. The wound was then kept open by a rubber tube similar in size to that which had been used for the trachea. This tube was split down about three-fourths of an inch at one end, and the two sides were sewed together at the extremity, the edges of the cut being pared off so as to make an opening through which the tracheal tube could be passed. This laryngeal rubber tube was passed upward, through the opening in the trachea, to the larynx, and the tracheal tube was passed through the place prepared for it in the end of the laryngeal tube.

Subsequently, after several experimental tubes had been made, new laryngo-tracheal tubes were constructed. Although somewhat larger in caliber than the rubber tube, the first of the silver tubes made had proven too small, and a tube, the caliber of which was about two millimeters greater than that of the rubber tube formerly worn had to be procured. Owing to the contraction of the trachea about two inches below the opening, whenever the tracheal tube was left out for fifteen or twenty minutes, it was necessary to make the silver tracheal tube long and formed, at its

lower extremity, like the Durham tube. This silver tube the patient wore comfortably and with it was able to talk naturally. The author thought that the patient would be obliged to wear the tube the remainder of her life because of the elastic stricture of the trachea about three inches below the glottis.

Dr. W. E. CASSELBERRY: The instructive case which Dr. Ingals has reported, exemplifies in detail the fine degree of ingenuity and skill which is required in the treatment of chronic stenosis of the trachea. Scarcely two cases can be met by the same resources. As a matter of interest concerning vocal utterance I would like to ask, if during the five or six years that this patient is reported to have been "speechless" because of total occlusion of the trachea, it is meant that she was unable to speak at all or make any sound whatever in the way of articulate speech. The case calls to me a very interesting one which was exhibited at the last meeting of the American Laryngological Society by Dr. J. Solis Cohen, of Philadelphia, in which he had performed total resection of the larynx for carcinoma, and in which after cicatrization there was absolutely no aperture whatever between the mouth and the lungs, the patient breathing through a tracheotomy tube. The larynx had been totally extirpated and no connection whatever existed between the lungs and the mouth, and yet that patient could speak with fair distinctness and sufficiently loud to be heard over a small hall and he even sang a song to the fellows of the Association. These feats he would accomplish by first sucking and half swallowing air into the pharynx and upper esophagus thus distending the pharynx on the principle of the bagpipe and using this stored air as the primary force for speech, keeping the mouth nearly closed and utilizing the tongue and lips to the utmost. Laryngoscopic examination disclosed nothing similar to vocal cords and yet the base of the pharynx seemed a trifle puckered as from cicatrization of the wound and it is likely that some small folds of mucous membrane had developed to fill nature's need, which being thrown into vibration by expulsion of the previously stored air produced a sound which was moulded by the lips and tongue into articulate speech.

It demonstrates the compensatory powers of nature, and it will be interesting to learn if the case reported in the paper, after five years of similar need, developed any such ability.

Dr. INGALS stated that the patient was unable to speak even in a whisper that could be understood; though by sucking air into her mouth before attempting to speak she could make some sounds

with her lips, but the nurses and physicians at the hospital were unable to understand more than one word in ten ; her friends, however, had learned to understand her by the movements of her lips.

Several months after the operation the patient was wearing the silver tracheal tube and speaking naturally.

Dr. W. H. WILDER read a paper entitled

THE RELATIVE IMPORTANCE OF OPTIC NEURITIS AS A SYMPTOM
OF BRAIN TUMOR.

Dr. BOERNE BETTMAN : There is no question that the existence of optic neuritis is very important from a diagnostic standpoint, and that it occurs in a great number of cases is also true, perhaps in a larger number than Dr. Wilder reported. The reason that statistics do not show its occurrence in more cases is probably due to the fact that the patient dies of the tumor before optic neuritis can set in.

As to the theories called upon to explain the presence of optic neuritis, there is no doubt that the displacement of lymph fluid plays a very important role. I have been able to verify this in several cases where I made an examination of the eyes, intracranial tumor being present, and I always found a hydrops of the vaginal sheath covering the nerve, also an edema of the head of the nerve. As a result of the edema, I found hypertrophied nerve fibers, to which attention was first called by Roth, and later by Rumpf. When we examine these cases with the ophthalmoscope we notice in the nerve a number of white spots which have been explained as fatty degeneration, but the microscope will show the hypertrophied nerve fibers, which are always due to the edema of the nerve tissues.

It seems to me that the reason optic neuritis does not occur oftener in hydrocephalous is due to the fact that the sutures of the child's cranium not being inclosed the bones are more easily displaced and in that way the pressure more readily equalized. That optic neuritis is an important symptom from a medico-legal standpoint can be best illustrated by a case in which I took part some months ago. Our worthy President and myself were called as experts in a case where an insurance company would not settle with the heirs of an individual who had met with a serious injury to the skull, resulting six months later in death. The insurance company claimed his death was not due to accident but to the presence of an intracranial tumor. They called in the testimony of the physicians who had treated him, and in answer to

the question whether an ophthalmoscopic examination had been made, they stated that it had not; and it was shown how important a point it was to make an ophthalmoscopic examination in every case of intracranial tumor, and it seems to me their negligence in not doing this had a great deal to do with the loss of the case to the insurance company.

Dr. H. M. BANNISTER: One or two points suggested themselves to me in hearing the paper; one is that I should like to ask the proportion of the cases which Dr. Wilder reported where the optic neuritis was relieved or disappeared after successful operation. Last summer two Italian physicians reported a case where complete cure of the optic neuritis followed successful operation for glioma. The fact stated recently by Horsley that in almost every case merely opening the skull relieves the optic neuritis, seems to me of importance, especially if it is a matter of pressure. Lucas Champonnière claimed in a discussion some years ago that the great relief obtained in many operations on the brain is simply due to the relief of pressure, and Horsley seems to have recognized this as having a certain value in cases of cerebral tumors.

Dr. HENRY GRADLE: These cases always proceed to atrophy as long as the tumor continues to exist and invariably end in blindness if the patient lives long enough, but if the tumor can be removed or influenced by antisyphilitic treatment the process is arrested and atrophy does not necessarily ensue. Dr. Bannister has just referred to the observations of Horsley published within a few weeks in the *British Medical Journal*, in which he found immediate improvement of the sight after the operation and complete return to the normal condition. There has also been a series of six cases published lately from Hirschberg's clinic, of syphilitic brain tumors cured by specific treatment. In all of these the neuritis disappeared and the vision became perfect, and remained so.

Dr. Wilder did not dwell upon the difference between what the Germans originally called choked disc and optic neuritis. Unfortunately it is very difficult to draw a line, and perhaps in a majority of cases it may be impossible to strictly distinguish ophthalmoscopically between one and the other; but now and then the line can be drawn and we can consider the case as either purely one of edema where the sight is but little injured, while the other extreme is represented by cases of neuritis, with hemorrhage, without much prominence of the papilla and with the usual indistinctness of its edges, which we find in the case of neuritis of ocular origin. As to the pathogenesis of these cases our knowledge is not quite definite.

The infectious theory of Leber and Deutschemann, which explain that these cases are due to irritating substance carried down from the brain through the lymph channels, has not been proven to a sufficient extent to be applicable to all cases, but where there is true inflammation this is the most plausible view, because we do not know of a single instance in general pathology where mere edema, or congestion, not complicated by the presence of chemical irritants, leads to genuine inflammatory action. On the other hand the dropsy of the sheath of the optic nerve often found at the autopsy of choked disc leaves no doubt that the pressure element is of importance in those cases which begin as characteristic choked disc, with edema of the papilla and with but little interference of sight. Probably the origin is both mechanical and chemical in those cases which ophthalmoscopically represent neither pure choked disc nor typical ordinary neuritis, but a blending of the two types. If neurologists tried to distinguish between these two forms of change and reported the type the distinction might lead to diagnostic inferences.

Dr. W. F. COLEMAN: In a few cases Dr. Wilder reported as having been operated upon he said there was optic neuritis, but he did not mention the defect in vision. It is not infrequent in brain tumor that vision is normal with very advanced optic neuritis, and that will emphasize the necessity of the general practitioner having some knowledge of the use of the ophthalmoscope; if he has not, the unfortunate patient with a brain tumor will fall between the devil and the deep sea, because having good vision he will not consult the oculist and the general practitioner whom he consults will not examine the eyes. I will relate an unusual case of double optic neuritis with brain tumor now under my care. The patient eight months previous to consultation noticed his vision markedly defective. His vision upon first consultation was one-fourth in each eye. He had from the first, attacks of persistent intense headache which kept him awake at night; he had, at one time, paralysis of the right side, which is still weak, still later, for one day, paralysis of speech and was unable to answer questions. On examination he had normal reflexes and normal sensation throughout. He had swelling of the discs and of the whole retina of four dioptries. His vision was not improved by glasses. The discs were scarcely distinguishable from the surrounding choroid except by the grayish discoloration. The vessels were here and there deeply buried in the swollen retina and more at the periphery than near the discs. In the right eye at the inferior outer quadrant

there was a large plaque of atrophic choroiditis with starfish prolongations extending from it. In the left eye at the inferior outer quadrant there was a large area of pigment, infiltrated into the retina, and there was in both retinæ slight hemorrhage. I would like to ask Dr. Wilder if in his experience or reading he has noticed any case in which the retina was so extensively involved in brain tumor. Under iodide of potassium and mercury this patient's vision has doubled in three weeks, the headaches are very much relieved. There is no history of syphilis or tuberculosis in the person or in the family of my patient.

Dr. CARK BECK: I have tabulated seventy-six cases of microcephalus, all the cases that have been operated since last September. In most of the histories we find no eye symptoms mentioned, I only found ten cases in which symptoms from the eyes were noted. I have operated on three cases that have been examined by an ophthalmologist, and in all the eye ground had been found normal.

Dr. W. H. WILDER: I did not go into a more elaborate consideration of the distinctions that are made between choked disc and optic neuritis by some of the German writers, for the reason that I thought the length of the paper would be too much of a tax upon the patience of the society; and for the same reason I did not care to engage in an extensive discussion of the different theories that attempt to explain this condition. I wanted particularly to present the statistical results I have obtained from the study of this series of cases.

I am inclined to agree with Dr. Gradle in the belief that there is some morbid element, probably a product of some tissue change in the structures that passes through the sheath of the optic nerve, and so into the lymph spaces of the optic disc; but this theory still lacks absolute proof. The question presented by Dr. Coleman I am hardly able to answer. I did not meet with histories of any such cases probably for the reason that the records of the ophthalmoscopic examinations were very incomplete; and it is a point to be dwelt upon that in so many of the cases on this list absolutely no examination was made with the ophthalmoscope.

I wish also to emphasize the remarks made by Dr. Bettman as to the great importance in these cases, of making an ophthalmoscopic examination as well as one to determine whether or not the visual fields are contracted.

A point I wished to bring out with considerable emphasis,

was in regard to the disappearance of optic neuritis in certain cases after operation.

PRESENTATION OF NEW ELECTRO-ENDOSCOPE.

Dr. W. L. BAUM: Almost all of the electro-endoscopes that have been devised up to the present time, possess uniform disadvantages in the fact that they cannot be used in connection with the smaller endoscopic tubes, and therefore the visual field is necessarily restricted. This is much to be regretted in those cases where the pathological lesions are situated in the deep or prostatic portion of the urethra.

The most practical instrument and the one with the aid of which the most important endoscopic work has been done, is the ordinary Grünfeld endoscope, the light being reflected from the head mirror, but there are few physicians who have acquired the necessary proficiency in its use, to make a diagnosis owing to the difficulty of introducing the light properly through the long, narrow tube.

To overcome this difficulty a number of investigators in this field have invented different forms of electro-endoscopes, the most prominent among them being known as the Leiter, or more properly the Oborländer electro-endoscope, and a modification of the same instrument by Otis, of New York; they are rather cumbersome to handle, and the light is not as good as it should be.

In hospital practice and in my clinic I have been struck by the fact that so few of the students are able to use these instruments and this induced me to draw up the plans for this new electro-endoscope. On the rubber handle we have a four candle power electric light; this is entirely encased in a brass box, immediately above the light is a condensor which concentrates the light on the mirror above. This mirror is perforated and covers the box at an angle of 45 degrees, and the light is thrown directly forward through the endoscopic tube.

I have also added to this instrument a small telescopic attachment which is situated back of the mirror in a line with the perforation through its center. It contains a magnifying lens, strength four diameters, with a focus of six and one-half inches; the consequence is that instead of being compelled to use a tube of the caliber of a No. 22 French S. we aver we can use a No. 16 F. S. with this instrument. This is I think a great advance in deep urethral work.

I am strictly in favor of the use of the straight tubes. If we wish to make an application or clean the field we can do so by letting down the cover with the mirror and telescopic attachment.

Endoscopes have been used for a number of other purposes. Dr. Fenger has made some investigations in regard to inspecting straight gun-shot wounds in order to remove particles of clothing or splinters of bone.

This instrument was constructed by Mr. Kathan, a recent arrival in the city, and I think the work is far superior to any that I have yet seen. I believe Dr. Belfield has an electro-endoscope here this evening which I should like to see demonstrated.

Dr. W. T. BELFIELD: Dr. Baum's remarks as to the difficulty experienced in securing satisfactory views of the deep urethra will, I am sure, meet the unanimous approval of all who have tried it. Quite a number of individuals have endeavored in different ways to improve this instrument so that one might get as good a view of the deep as of the anterior urethra; but I think all of those improvements have heretofore proven unsatisfactory. Dr. Baum's modifications are entirely new; they seem very ingenious and calculated to accomplish a great deal more than any other instrument now in use. I can understand the advantages he points out; the fact that the deep urethra can be investigated through a tube as small as a French 16, gives it a greater advantage than any instrument with which I am familiar.

I have been working on an instrument on an entirely different plan, designed to reach the deep urethra. The general plan is that the light shall be reflected from the outside, the electric light being thrown down into the tube from the outside, striking the surface to be investigated and then reflected to the eye of the operator; the single exception to that general plan is the instrument by Oberländer, who uses the ordinary tube and runs down that an apparatus consisting of two metal strips connected by a platinum wire. The current renders the wire incandescent and thus illuminates the surface directly at the spot. The intensity of the current required to render the platinum wire incandescent heats the instrument so much that it is necessary to keep water circulating through the instrument so as not to damage the urethra. That, as far as I know, is the only instrument in which the light is carried in the interior of the tube; this, of course, complicates the machinery and diminishes the amount of the tube left available for vision. A fault which pertains to all instruments I have read of or seen is that the field of vision is so small, it is simply the

transverse section of the tube which cannot very well be larger than 30 or 31 French, and is often smaller. In endeavoring to get at the deep urethra, I have constructed an instrument having two essential features which are different from any I know; one is placing a lamp in the further end of the tube; the idea was suggested by the common cystoscope. I have a tube turned up at the end so that the light can be placed in that extremity and be out of the way. The windows are made right in the curve of the instrument, and in that way we get one very much longer than any transverse section; a window an inch long and three-eighths to one-half inch broad. The lamp carried at this end throws the light directly down upon the surface to be investigated, which lies against this open window, and that surface is curved up so that we get a perspective and not a flat view. I have been using this instrument so short a time that I do not feel justified in making any assertions as to its practical value.

I have made the same kind of an instrument for the female bladder; a very short instrument of larger caliber can be made to carry a lamp in the end, and curved somewhat, so that the window shall be longer. With that one can see the orifices of the ureters quite plainly when the woman is put in the Trendelenburg position. One can investigate the base of the bladder nicely, and, indeed, accomplish all that Kelly has proposed to do by overstretching the urethra up to 38 or 39 French, and thereby running the risk of laceration and possibly temporary incontinence.

There were 105 members and visitors in attendance.

On motion the society adjourned.

JUNIUS C. HOAG, Secretary.

A regular meeting was held at the Schiller Club, March 5, 1894

Vice President Moyer in the chair.

The minutes of the preceding meeting were read and approved.

The committee on membership reported favorably on the applications of Drs. Edwin G. Earle, 270 North Avenue; Emanuel J. Senn, St. Joseph's Hospital; Josiah Jones, Morgan Park, Illinois, and Frank S. Churchill, 271 North Clark Street, and on motion the the Secretary cast the ballot of the society for their election.

The applications of Drs. J. P. Buck, F. Kreissl, E. R. Ogden, A. A. Wesley, A. E. Evans, G. Goldmann, J. H. Slayter, W. F.

Waugh and Maurice Kraus were read and referred to the Committee on Membership.

DR. GEORGE E. KRIEGER read a paper entitled :

RECENT INVESTIGATIONS OF THE THERAPEUTIC VALUE OF INJECTIONS
OF ORGANIC FLUIDS, ESPECIALLY SPERMINE, IN STERILIZED
SOLUTIONS.

Demonstration of patients and specimens. See page 261.

President McArthur then took the chair.

Dr. CARL BECK : For more than one year I was very much interested in these experiments, to which Dr. Krieger has devoted some time. At that time Dr. Gradle and myself made some experiments with the extracts of the cerebrum in cases of epilepsy. These experiments were not made with such an exact technique as Dr. Krieger's, and inasmuch as we did not see any results at all, we abandoned it. Since that time I have read the literature, but have had no chance to experiment. I sent a patient to Dr. Krieger, whose history is, briefly : The patient, forty-seven years old, had acquired syphilis in 1870, in the Franco-Prussian war, and had secondary and tertiary symptoms; had been in the clinic of Dr. Lewin, of Berlin, and other clinics; had been treated for years with injections of hydrargyrum, iodide of potash, and otherwise, but never got rid of the pain in his back and the insomnia. Finally there was some trouble that required a surgical operation, and he was sent to me. Inasmuch as I could not find anything in the objective symptoms, I referred all his complaints to neurasthenia, and sent him to Dr. Krieger. He gave him fifteen injections in the way he described, about two months ago, and the symptoms have practically all disappeared. I have tried this treatment on another patient, who had impotentia sexualis and insomnia, and in this case I found some improvement after the injections. I have tried it in a case that is very remarkable, where a lady has used morphine for over six years in small doses, and lately as large doses as sixteen grains a day. She is now in the hospital under careful observation, and for the last four days has not had any morphine at all, but has received spermine injections. I think these experiments should be given a thorough trial, and fully reported.

Dr. H. N. MOYER : It seems to me that none of us are in a position to discuss this able paper of Dr. Krieger. So far as I know, no one in this city has tried to follow the method of Brown-Sequard. It requires a thorough mastery of the technique

of asepsis, and deals with a fluid particularly difficult to sterilize. The dangers are so great, that I believe the more conservative of the profession feel like waiting to get further enlightenment on the subject.

There is at this time, and has been ever since the original publication of Brown-Sequard, a certain number of investigators who have been constantly endeavoring to establish the value of his method. Results have been achieved, which, while they do not sustain the first enthusiastic estimates, are still of sufficient importance to justify further study and research.

The class of cases receiving the greatest benefit from this treatment have been the organic spinal affections and neurasthenia. The case presented by Dr. Krieger, I would not class among the spinal affections, but rather think it one of parietic dementia; that is, it is essentially a degeneration of the cerebral cortex. Of course the mental symptoms are not pronounced, but often are not in parietic dementia, the motor and sensory portions of the brain being most affected. This is a disease that is notoriously subject to intermissions which sometimes last for weeks or months; so that we may well ask ourselves whether these injections really caused the improvement, or whether it was due to the natural tendency of the disease to intermit.

We hope the method advocated by Dr. Krieger will prove of value; at least we can say this much, it does not violate well known physiological laws. Recently some experiments have been made with so-called medulline and muscleine made from spinal cord and from muscles. These have been macerated and injected into patients' bodies with no effect. A fully developed healthy tissue cannot contain substances which would affect the nutrition of the body favorably; but when we come to the glandular organs we can readily understand how substances may be derived from them which may prove to be of great value in the treatment of nervous diseases.

Dr. G. E. KRIEGER: In regard to Dr. Moyer's remark about the possibility that the patient exhibited only an intermission of the disease, I would like to say it would be strange that such an intermission should set in on the day the injections were commenced, and improve with the injections, when there had been no change before for twelve months, although the patient had been treated by prominent physicians.

Dr. J. J. LARKIN read a paper entitled

NEW AND RAPID METHOD OF REPAIRING INTESTINAL INJURIES,
with exhibition of Carter's clamp.

Dr. E. WYLLYS ANDREWS: This particular instrument has, while a limited application, a very useful one; it does not seem that in any sense it takes the place of an anastomosis appliance, such as plates, sutures, or buttons; it simply is useful in repairing a single kind of lesion, namely, a perforation of the intestine. The very same idea has occurred to me in putting sutures into gunshot perforations and stab wounds of the bowels; that is, the possibility of some simple clamp which could be instantaneously slipped on, as this could be, and the penetrating points or teeth of which could hold the mucous membrane in place. If the Murphy button had some little penetrating teeth so placed that they would be sheathed after the button was closed, its usefulness and its safety would be very much increased.

My experience with the Murphy button has been that of three operations, two of which ended fatally.

Dr. EDMUND ANDREWS: I have been much gratified in looking at this little clamp. Instead of making all of the same size it would be well to have several sizes; it might be well to make some fully as large as this, and others smaller, so that the surgeon could have a choice, and adapt it to circumstances. If the rent be pretty large, for instance, in the colon or the wall of the bladder, one might desire to have all the length there is in this instrument or possibly even more in order to avoid the necessity of gathering the intestine and its folds too thickly in one place. If the large instrument were somewhat straighter in form it could be made to close rents in the bladder, because with a slighter curve it could subsequently be drawn out through the urethra by seizing one end of it with a small lithotrite. The invention impresses me as a valuable one.

Dr. F. BYRON ROBINSON: The use of this instrument in intestinal surgery will be very limited; it will be of no use in a bullet wound of the intestine where the mesentery is attached, because many times there will have to be a resection or a lateral, or end-to-end anastomosis made. In regard to bullet wounds aside from the mesentery, the instrument would have to be quite long, or else it would pucker up a large amount of intestine, and I would just as soon risk sutures on myself. The criticism made on the Murphy button, that it would not pass the ileo-cecal valve would be more

true of this instrument. Its advantage is rapidity and no sutures—the fatal disadvantage of the plates is the sutures.

Dr. NICHOLAS SENN: It was not my intention to rise until I heard Dr. Robinson support the author in his view that he had invented something new. It is very interesting to the surgeon to find how history will repeat itself, and how investigating minds will run in the same channel even when their actions are separated by a half century or more. In my address to the military surgeons in this city last summer, I alluded to three mechanical devices, and furnished illustrations of the same, all of which act upon the same principle as the little instrument exhibited this evening. If the gentleman will look over that paper, he will find those mechanical devices very simple indeed, much more so than the instrument he has exhibited, and intended for the same purpose. I must also take issue with the essayist when he makes the statement that the bone plate and the Murphy button were intended as a substitute for sutures in closing single wounds of the intestine. All these devices were brought into use for the purpose of establishing a communicating opening between two hollow viscera. I believe that so far we have nothing that can take the place of sutures in the treatment of a single wound in the intestine.

Dr. J. J. LARKIN, in closing the discussion said: I have simply this to say that I presented this appliance for the purpose of getting an expression from the members of the Chicago Medical Society. If it is a useful instrument I am fully satisfied the members of this society will recognize it. If it is a useless appliance I want their judgment in the matter. I am still convinced, however, that it has a usefulness in closing stab and bullet wounds in the intestine. Its rapidity of operation means a great deal of valuable time saved. You will also admit that there are hundreds of cases of gunshot wounds occurring in the smaller towns and rural districts, in which the first doctor who sees the patient is appalled at the idea of having to find the wound and sew it up, or to put in a Murphy button or other appliance. The simplicity of this instrument will encourage these timid men to go in and repair the bowels, I do not claim this clamp will close an intestine that has been cut off by a bullet or anything of the kind. I do not claim it will close an intestine at the union of the mesentery, but about four-fifths of the surface of the intestine is not covered by mesentery, consequently there are four chances to one in a bullet wound of the intestine that this instrument will be of use.

Dr. H. W. GENTLES reported

A CASE OF ADDISON'S DISEASE.

and exhibited the patient.

Dr. ELMER LEE read a paper, see page 272, entitled,

TYPHOID FEVER TREATMENT.

Dr. A. H. BURR: There is one point in regard to the method of Dr. Lee that has not been alluded to, and that is elimination through the kidneys. Dr. Lee spoke of elimination largely through the bowels. By irrigation of the bowels we wash out much of the septic matter, and at the same time very large quantities of water are absorbed and passed through the blood into the kidneys, and the poison in the blood passes out in this way also. In my experience I have found a large percentage of danger in typhoid fever came from the concentrated poisons of the urine, and have seen several cases complicated by severe kidney inflammation or congestion, and invariably in these cases I have used large douches of water always with good results, even in some cases where the patient was at the point of death.

Dr. ELMER LEE: I believe water can never do the fever patient harm so long as the temperature is above normal. That has been my experience, and I would no more hesitate to apply cold water in the case of a fever patient than to put it on the back of my own hand. So far as the washing out of the bowels is concerned, it is but following the law of modern reason and cleanliness which is regarded as the greatest advance in medical science of this generation. We know that typhoid fever is produced by absorption of infection contained in the intestinal canal, and that it is the source from which aseptic matter gets into the blood which produces also other diseases; and if we can cleanse that canal, which is the common sewer, foul and filthy, although it passes through a beautiful creature, we may save the patient from a prolonged illness and shorten the course of disease. It has been my experience that convalescence in typhoid fever averages from fourteen to fifteen days from the beginning of this treatment. Regarding the mitigation of the disease, I have only this to say, that if the stomach, the small intestine and the colon could be cleansed early enough, I believe typhoid fever could be aborted in the early stage of the disease. In the treatment of typhoid fever one authority only is recognized, and that is the authority of common sense and individual experience.

Dr. DOERING gave notice that at the annual meeting he would

move appropriations from the treasury as follows : For Secretary, \$200; for Editor, \$200 ; for Treasurer, \$100.

Dr. DOERING also moved that a committee be appointed to draft resolutions expressive of the society's appreciation of Dr. Senn's magnificent donation of books to the Newberry Library.

On motion, the society adjourned.

JUNIUS C. HOAG, Secretary.

News Items.

THE NEW MERCY HOSPITAL INTERNES for the ensuing year are Robert H. Harvey, J. B. McCord, W. C. Raymond and A. H. Roler.

FOR RENT. A physician can rent morning office hours in Suite 711, The Marshall Field & Co. Building. Call at office between 9 A. M. and 4 P. M.

DR. EDMUND ANDREWS has moved from 6 Sixteenth Street, to 2520 Prairie Avenue. Hours until 8 A. M., from 11:30 A. M. to 1 P. M., and from 6 to 7 P. M.

FOR SALE. One set Index Catalogue of the Surgeon's General's Library one set Medical and Surgical History of the War of the Rebellion. Apply at RECORDER office.

Dr. ARCHIBALD CHURCH was married on March 28, at Maysville, Ky., to Miss Margaret Finch. Dr. and Mrs. Church, after a month in the Bermudas, will be at home at the Virginia.

Dr. A. R. SMALL has removed his office from the Columbus Memorial building, 103 State Street, to 3300 State Street. Telephone South 667. Hours: until 8 A. M., 1 to 3 and 7 to 7:30 P. M.

ST. LUKE'S HOSPITAL examination for internes resulted in the selection, out of seventeen candidates, of Charles F. Weir, John L. Porter, and Mills F. Clark, all of the Northwestern University Medical School.

THE DEPARTMENT OF HEALTH reports for March a mortality of 1,824, that is, at the rate of 13.98 per thousand per annum ; 305 cases of smallpox, and 103 deaths from this disease were reported ; 42,000 vaccine points were used during the month.

AT THE COOK COUNTY HOSPITAL examination for internes the following were the successful competitors: Rush Medical College: Ryan, first; Ochsner, second; Tice, sixth. Northwestern University Medical School: Beasley, fourth; Wood, fifth. College of Physicians and Surgeons: Hardie, third.

JOHN H. RAUCH, M. D., died suddenly in Lebanon, Pa., on March 24, at the age of sixty-five. Dr. Rauch was one of the best known authorities on sanitation in America. He was connected as President or Secretary with the Illinois State Board of Health from its organization until 1891. His services to higher medical education, and sanitary legislation are too well known to need comment.

THE CHICAGO MEDICAL SOCIETY at its annual meeting April 2, elected Dr. Nicholas Senn, President, and reëlected Drs. L. L. McArthur and H. N. Moyer, first and second Vice Presidents; Dr. Junius C. Hoag, Secretary, and Dr. A. R. Reynolds, Treasurer. The place on the Committee of Publication, vacated by Dr. Thackeray, term expired, was filled by the election of Dr. Archibald Church.

TWO \$100 PRIZES will be given by the Publication Committee of the CHICAGO MEDICAL RECORDER, for the best papers presented before the Chicago Medical Society during the year 1894-1895. The MEDICAL RECORDER is now self-sustaining and independent of financial aid from the society, and the Committee on Publication confidently hopes to be able to increase the number and amount of the prizes as the profits from the RECORDER justify. Dr. Church, the editor, must be notified of each paper entering the contest.

THE EDITOR has been requested by several delegates to the American Medical Association, to inform them of the arrangements made for the journey to San Francisco, by the officials of the Association. The official train will leave Chicago, via the Santa Fé route, at 5 P. M., May 28. At Colorado Springs time will be allowed to visit Manitou and the Garden of the Gods. At Denver a reception is to be given to the visitors by a resident committee of the Colorado Medical Society. The trip over the Rocky Mountains will be by way of the Santa Fé and Rio Grande Railways, and will be made by daylight. A day will be spent in Salt Lake City, and San Francisco will be reached on the morning of June 3. Mr. J. M. Connell, 212 S. Clark Street, will furnish all further particulars.

THE CHICAGO MEDICAL RECORDER

MAY, 1894.

Original Articles.

THE TREATMENT OF PELVIC ABSCESES BY LAPAROTOMY, WITH A REPORT OF EIGHTY-TWO CASES.

By FRANKLIN H. MARTIN, M. D., CHICAGO.

Pelvic abscess means pus in the pelvis outside of the uterus. This accumulation of pus may mean a few drops, a drachm, an ounce, or a quart. If it is a few drops or a drachm, its recognition is somewhat more difficult than when it reaches ounces or pints. In the former state it is often diagnosed by physicians who received their training six, eight, ten or more years ago, and who have not been able, or taken the trouble to keep themselves abreast of the times, as chronic pelvic cellulitis. When the pus is considerable in quantity it may be diagnosed by the tumor and fluctuation. Frequently these are the only cases of pelvic abscess which the careless or the inexperienced physician ever recognizes.

The importance of diagnosing pelvic suppuration by the general practitioner cannot be over-estimated. Cancer may be more dreaded, but it is no exaggeration to say that neglected pus in the female pelvis has destroyed many more women than has cancer. We are constantly keeping the war cry before general practitioners "Make early diagnosis of cancer of the uterus so that the patients may be saved by a radical operation." With equal justice, in the same warning voice we should urge them to diagnose incipient and obscure pelvic abscesses.

The general physician must eventually be made to recognize that there is no such thing as chronic pelvic cellulitis. He has discovered in his reading of the debates of the last decade that

chronic pelvic cellulitis has become an unpopular term with operators, but the fact that he still finds it current in pelvic literature coming from the pens of the exclusive electro-hydropaths and gynecologists who exclude all forms of radical surgery from their treatment, and the fact that he is constantly meeting cases in his practice which seem to tally exactly with his idea of what chronic cellulitis should be, makes him adopt with complacency the so-called conservative pathology. The result constantly is chronic invalidism or death.

Why are abdominal surgeons so positive that there is no such thing as chronic pelvic cellulitis? Because no competent surgeon, no matter how many times he has examined the pelvis through the abdomen, has ever discovered a single case of chronic pelvic cellulitis, although the diagnosis might have seemed very conclusive prior to the operation.

What then, is that mass of exudate which seems to completely surround the cervix, and renders the uterus more or less immovable, and gives the impression that melted paraffine has been injected into the cellular tissue and allowed to harden; and which on pressure causes pain, and gives rise to the long train of pelvic symptoms which we have been accustomed to attribute to pelvic cellulitis? It is the result of suppuration of tissues in the pelvic cavity, frequently involving the peritoneum. This can be proven every time we open the abdomen for the condition described, because the whole mass can be enucleated from within the peritoneum without leaving a vestige of the so-called cellullitic mass. Many of the cases in my present list have been the means of dispelling, at least temporarily, the fallacy of chronic cellulitis to some honest friend of mine who for once was sure that he had a genuine case. On opening the abdomen, however, with the patient in the Trendelenberg position, we would find in place of a bulgin peritoneum beneath which could be felt a mass of cellular inflammation and hardened exudate, a pelvis full of large corrugated tubes containing pus, thoroughly adherent as the result of local peritonitis, and matted together so firmly that it was not surprising that, when palpated through the abdominal walls, it had been mistaken for a uniform cellullitic exudate. The local peritonitis which resulted in these adhesions was caused by infection extending to the peritoneum from the suppurating tubes.

One or two such cases do not convince the non-operating gynecologist that there is never such a condition as chronic cellulitis. If he should from this time on, however, open the abdomen

in every case which it seemed clear to him was severe chronic cellulitis, and should find notwithstanding his careful diagnosis, that not one of say seventy cases proved to be cellulitis, but instead, some form of intra-pelvic suppuration, he would begin to become convinced that Lawson Tait, Joseph Price, and others were right, and that he had been mistaken; that is that there is no such thing as chronic pelvic cellulitis; that which he and his other so-called conservative friends had been calling chronic cellulitis was nothing more than the result of suppurating tubes, ovaries, or vermiform appendices. If the same skeptic, after finding no cellulitis in his seventy cases, would look up the literature of the subject and find that chronic cellulitis was never found by operators, but frequently by non-operating gynecologists, it would begin to dawn upon him that he together with all other men who talk glibly of chronic cellulitis had always been wrong.

Joseph Price states, according to Maury, that in over fourteen hundred abdominal sections he has not once observed an exudation from cellulitis. In over three hundred laparotomies I have never seen a case in which a definable exudate as the result of chronic cellulitis was present.

The point I wish to make is not that all pelvic abscesses or collections of pus in the pelvis, are the result of disease of the tubes and ovaries, but that the condition which has been so long mistaken for chronic cellulitis with exudates, is invariably the result of intraperitoneal infection, either from diseased Fallopian tubes, ovaries, the vermiform appendix, infected hematocele, ovarian or uterine tumors, perforated intestines or bladder, extrauterine pregnancy, infected broad ligament tumor, or broad ligament abscess.

I may be criticized for my definition of a pelvic abscess: Pus in the pelvis, outside of the uterus. Many authors limit a pelvic abscess to a collection of pus which cannot be enucleated. For instance, Pozzi gives the following: "Certain forms of hematocele which have suppurated and become transformed into a purulent mass." "A real abscess, which adheres on every side to the soft or hard portions of the pelvis and which cannot be removed." These definitions seem vague and unsatisfactory, because a collection of pus under that definition would become an abscess only when the particular operator failed to accomplish its enucleation. An operator of experience, in other words, no matter if he were enucleating pus-sacs from the pelvis every day, would scarcely ever find a pelvic abscess, while some beginner would solace him-

self for his incompetency in every second or third case by declaring that in his practice pelvic abscesses preponderated.

If we do not include collections of pus around the vermiform appendix, except when such collections extend into the pelvis and involve the Fallopian tube or broad ligament, we may safely say that ninety-five per cent of all pelvic abscesses are of tubal origin; one per cent of pelvic abscesses are the direct effect of infection of broad ligament cellular tissue, broad ligament phlegmon following labor, abortion or miscarriage. The other four per cent will include infected broad ligament hematoceles, extrauterine pregnancies, ovarian cysts, broad ligament cysts, or direct traumatic injury of the tissues of the broad ligament, with infection.

TREATMENT.

The treatment for pelvic abscess which I advise here is not recommended solely because of outside authority, or because of some one's peculiar pathology, but because it is based on the results of a large amount of abdominal surgery; and the line of treatment is deduced directly from a visible pelvic pathology as a direct result of treating in the last four years eighty-two cases of pelvic abscess by laparotomy, and eight cases by vaginal incision or by the expectant plan.

I have never regretted one of my eighty-two laparotomies for pelvic abscesses of all kinds, but in the five vaginal incisions I have had reason to regret the procedure in all but one case. In my experience, which coincides with that of many other operators, lies the key to the proper treatment of these difficulties. Ninety-five per cent of all abscesses of the pelvis include pus tubes, and are of such a nature that it is almost certain that they can be successfully enucleated, and four per cent of the remainder are enucleable. Therefore if but one form of treatment were permissible, laparotomy should always be the treatment. Unfortunately, however, the day of specifics in medicine and surgery has not arrived, and we must admit, that in possibly two per cent of all pus collections in the pulvis, other means than laparotomy may give us satisfactory results. The reason for this is that about two per cent of pelvic abscesses, including suppurating broad ligament hæmatoceles and ectopic pregnancy, are subperitoneal and cannot be enucleated.

While these cases may be treated by laparotomy, the fact that they cannot be permanently eradicated by enucleation makes it feasible, if not desirable, where positive diagnosis can be made, to drain them from the vagina. This makes us realize how desirable it

would be to be able to lay down a definite iron-bound rule in regard to the treatment of these important troubles. For who, no matter how skilled, can invariably differentiate between a pelvic abscess of the broad ligament and one in the peritoneum, when their relative frequency is as one to fifty, and their physical signs, symptoms and history are so nearly identical? I must confess I cannot. If then, the ordinary man cannot positively distinguish between these two classes of cases, let us inquire what would be the result if these particular cases of subperitoneal or non-enucleable abscesses should be treated by laparotomy. Laparotomy would not succeed in removing them, we must concede; it would, however, enable us to definitely locate them. By attaching them, when large enough, to the abdominal wall, by shutting them off from the general peritoneal cavity by well established methods, by free incision, thorough cleansing, disinfection, and packing with iodoform gauze, ideal results would be obtained. If, after definitely locating the abscess, it should be found impracticable to treat it through the abdominal incision, vaginal drainage could be more safely accomplished with the guidance of the knowledge gained by the exploratory incision. What could be gained in these cases by vaginal incision? If the abscess pointed low and definitely, and the patient were weak or moribund, a shallow incision through the bulging mucous membrane, dilatation and exploration by the finger, thorough cleansing with antiseptic fluids, or when permissible with the dull curette, followed by irrigation and drainage with either rubber tubes or gauze might occasionally give satisfactory results. Here, however, there is nothing in the procedure to ensure the correctness of the diagnosis. One can never say definitely after vaginal section that the abscess was not the result of tubal infection, or that another abscess may not have been left on the opposite side which would be sure to cause future trouble.

If the abscess be unilateral, is the vagina as favorable a route for drainage as can be furnished through the abdominal wall, where the Mikulicz drain can be employed? The vagina is proverbially non-aseptic. It is also more unsatisfactory to accomplish drainage through the vagina because of the difficulty in reaching the abscess incision.

Finally, the natural history of these cases, the great preponderance of intraperitoneal over extraperitoneal abscesses, the fact that all intraperitoneal abscesses are enucleable, that they are almost invariably bilateral, that a large proportion of the five per cent of extraperitoneal abscesses are amenable to treatment by

laparotomy, the insurmountable difficulties of making differential diagnosis between the two varieties, the danger in the vaginal treatment of mistaking a bilateral for a unilateral abscess and of wounding important organs while making an incision into a suspected abscess, the difficulty of proper vaginal drainage to insure closure of the abscess fistula and prevent a permanent pus fistula, the satisfaction and possibility of definite knowledge gained by the complete exploration possible in a laparotomy, the fact that ninety-eight per cent of all pelvic abscesses cannot be treated rationally in any other way than by laparotomy, and lastly, the fact that all modern abdominal surgeons who are in the habit of studying the pathology of pelvic abscesses in the uncovered light of facts, not theoretically, agree that laparotomies are more and more indispensable in the rational treatment of these difficulties; these facts, let me repeat, make me favor in all cases where the patient is not moribund, laparotomy as the universal treatment for pelvic abscess.

In the eighty-two laparotomies for pelvic abscess which I have made, seventy-seven demonstrated beyond a shadow of doubt that the trouble arose from one or both Fallopian tubes. The percentage of tubal abscesses in this series was therefore ninety-four, all other varieties being included in the remaining six per cent.

In the seventy-seven tubal cases included in this list, pus in quantities to be recognized easily was present. This series does not include cases of simple catarrhal salpingitis, so-called cystic ovaries, or tender tubes or ovaries, for which laparotomy unfortunately has been too often done in the past; it includes only those cases in which pus actually existed in quantity sufficient to be recognized macroscopically. These seventy-seven cases are naturally divided into five classes:

1. Cases in which the infection was confined entirely to one or both tubes, with no extension to the peritoneum. Of these, nine cases were operated on with complete recovery with no fistula or other complications.

2. Cases in which both tubes were infected, and general adhesions existed from extension of the infection to the peritoneum, cases usually diagnosed as chronic cellulitis. Twenty-one of these cases were operated on with one death. In the twenty cases which recovered all were cured without permanent fistula.

3. Cases with universal adhesions from both tubes, with abscesses so large that fluctuation was distinct and that the temptation to vaginal puncture was often great. Of these there were forty-one cases, in all of which laparotomy was performed and com-

plete enucleation accomplished. Of these, one died from the laparotomy, and in one a fistula still exists which for a year has stubbornly refused to heal; the others completely recovered.

4. Large single tubal or tubo-ovarian abscesses which as far as could be ascertained were unilateral. As these were found to have already formed adhesions to the abdominal wall, they were incised and drained directly through the abdominal walls, no attempt at enucleation being made. It is a question whether further watching of these cases will not develop the fact that the opposite tube was also infected. These cases, three in number, recovered and the fistulas promptly closed.

5. Four cases in which the right tube alone was infected, were complicated with appendicitis. The fact that but one Fallopian tube was infected in each of these cases makes the disease appear to have been due to the appendicitis. The appendix and tube in each of these cases were enucleated. One patient died from the operation and three recovered.

In the eighty-two cases operated on there were five cases which were not tubal. Of these one was a suppurating dermoid cyst with a single adhesion to the large intestine, through which it was undoubtedly infected, and four were suppurating ovarian cysts, all of which had been infected from lying in contact and forming pressure adhesions with the large intestine.

In the last five years I have observed carefully, and treated eight cases diagnosed as pelvic abscess in which the treatment was on so-called conservative lines. In one only of these eight was I satisfied that the abscess was extra-peritoneal or a direct result of infected broad ligament phlegmon. Two were the result of tubal infection and peritoneal extension in fibroid tumors of the uterus, in one of which a spontaneous cure resulted from the successive discharge of the two pus sacs through the uterus. In the other spontaneous discharges occurred repeatedly from one side into the bowel, and while preparing for a laparotomy the opposite side discharged into the peritoneal cavity although not at first recognized, because the symptoms resembled those of similar previous attacks. In this case death resulted promptly from septic peritonitis. A fourth was a case I saw several times in consultation with another physician, which was diagnosed as pelvic abscess complicating a fibroid tumor. The abscess pointed in the rectum, and unfortunately was opened into that septic canal. It has been going through a process of filling and discharging, and the woman has been in a complete state of invalidism ever since.

There can be no end to her difficulty except by a laparotomy, although the laparotomy would have given much better chances of success before the rectal fistula had been established. The other four, the records of which are not complete, were fluctuating abscesses pointing low in the pelvis, which were opened per vaginam, as a matter of routine, and irrigated and drained with a rubber tube. These cases have been lost track of. I know, however, that in all the long, irritating aftertreatment with the uncertainty as to the closure of the fistula, and as to the probabilities of a similar abscess developing from another center arising from another tube, made the cases much less satisfactory, both from the patient's and the physician's standpoint, than they would have been had they been treated by laparotomy. One patient had a discharging fistula for more than a year, and still had it when I saw her last. Not one of these cases healed promptly and satisfactorily.

Only one of these eight cases was better off without a laparotomy; that was the first case mentioned where the history, the position, and the result demonstrated infected broad ligament phlegmon as result of a puerperal sepsis. The history was perfect health previous to confinement, a midwife at confinement, a profound chill during first week of convalescence, later on fever, pain in left side, night sweats, emaciation, and finally a large fluctuating tumor in left broad ligament pointing low to the left of the cervix and through the side of the vagina. The result was subsidence of all symptoms as soon as the abscess was evacuated, the cavity cleansed and drainage established, the complete contraction of the abscess cavity and healing of the fistula within a month, and the perfect recovery of the patient within two months without pelvic tendencies of any kind.

BRIEF SUMMARY OF RESULTS.

In eighty-two pelvic abscesses of all kinds treated by laparotomy there were three deaths, one permanent fistula remaining after one year; all others recovered.

In eight pelvic abscesses treated by the expectant plan or by vaginal incision, one died, one has a chronic fistula of three years duration, several had fistulas lasting several months each, and permanent recovery is certain in only one case.

DIAGNOSIS. So much has been hinted on this important branch of my subject in what has preceded, that I will only attempt to make a summary here. The diagnosis may be accom-

plished by considering, *a*. Predisposing and Actual Causes: Marriage, abortion, miscarriage, improperly managed, childbirth, gonorrhea, syphilis, tuberculosis, infection from use of dirty instruments, syringes, catheters, etc., in local treatments.

b. History. In the history inquire for miscarriages, abortions and confinement and the particulars of the course of each. Infection at one of these times must be looked for. Is there a history of acute vaginitis or peritonitis following the marriage relation at any time, indicating gonorrhea? Are there repeated miscarriages indicating syphilis? Look out for history of endometritis or metritis. Has there been history of sudden rises in temperature following slight chills? Has there been a history of slight elevation of temperature extending over some time with lateral pains in pelvis? Has dysmenorrhea or ovarian pain suddenly developed at any time. There is sometimes a history of repeated discharges of pus following rises of temperature indicating recurrent accumulation and discharges. A history of severe pain following a douche, a local treatment such as a uterine probing, a placing of a pessary, or an electrical intrauterine treatment, may aid in reaching a solution of the mystery.

c. Subjective symptoms: Dysmenorrhea, dull aching pain which begins with the menstrual discharges and which persists in the region of the tubes for several days after the flow ceases, followed by profuse leucorrhea, scalding urine, bearing down pain with severe dull pain in the region of the ovaries when the patient exercises, severe backache, lack of tone, mental depression, increasing nervousness and irritability, impaired nutrition, loss of flesh, slight elevation of temperature, particularly in the evening. These symptoms develop gradually until they become aggravated to the point of complete invalidism.

d. Objective symptoms: Endometritis, metritis, an hypertrophied uterus, frequently infected vulvo-vaginal glands, vaginitis often accompanied by urethritis. On bimanual examination will be found considerable masses in the region of the appendages, which are easily palpated, which at times will give a sense of fluctuation, at other times a boggy sensation. Frequently they can be moved or dislodged from their position, but not often. The masses are so sensitive that it is often difficult to palpate them, and the patient cannot refrain from making the abdominal muscles too tense to allow of proper examination. Anesthesia will eliminate this difficulty of diagnosis. To differentiate between a diseased tube and ovary it is only necessary to remember that the tube is

given off directly from the horn of the uterus, and that the ovary is situated below and a considerable distance from the uterus.

c. Exploratory abdominal incision as a method of diagnosis is rarely justifiable and scarcely ever necessary because of the comparative ease of diagnosis without it. The exploration of course makes the diagnosis positive.

DIAGNOSIS OF DOUBLE TUBAL ABSCESES WITH EXTENSION TO THE PERITONEUM.

Predisposing causes are similar to simple tubal abscesses. The history is similar with the additional history of one or more attacks of peritonitis, as the result of tubal leaking or other extension of infection beyond the tubes to the peritoneum. Sudden pain, shock, and more or less prolonged fever with abdominal tenderness are the milestones of these attacks. The subjective symptoms include those of simple tubal infection but more aggravated, together with the additional symptoms arising from peritonitis. The objective symptoms include those mentioned under the simple pyosalpinx with the additional symptoms of a general fixation of all the pelvic organs, the old symptoms so long attributed to cellulitis, with extreme general tenderness. The sensation imparted to the examining finger is one of indistinct fluctuation or doughyness. One side may be more fixed than the other. Occasionally the peritoneal extension has been so marked that no definite outline can be distinguished. Exploratory incision will expose a seemingly inextricable mass of large corrugated tubes, adherent intestines, omentum and uterus. By this exploration alone, however, can the true state of affairs become appreciable.

DIAGNOSIS OF DOUBLE TUBAL ABSCESES WITH UNIVERSAL EXTENSION IN WHICH THE COLLECTIONS OF PUS ARE SO LARGE THAT IT RESEMBLES ONE LARGE PELVIC ABSCESS.

The predisposing and actual causes, history, subjective symptoms, objective symptoms, are much aggravated as compared with the last three, but similar in nature to those classed as smaller abscesses with extension. On bimanual manipulation it is frequently more difficult to differentiate two abscesses because of the large size of one or both, causing a pressure which obliterates the line of demarkation. The masses give a distinct fluctuation and are differentiated from ovarian and dermoid cysts by the irregularity of the tubal enlargement, its general fixation, and its bilateral position. Among the subjective symptoms will be found more severe pain, greater loss of flesh, aggravated nervous symptoms,

and a state of almost if not quite complete invalidism, with history of chill and fever. Exploratory incision reveals large, generally adherent, fluctuating masses originating from the cornu of the uterus.

DIAGNOSIS OF PELVIC ABSCESES OTHER THAN TUBAL.

Abscesses arising from ovarian or dermoid cysts will have the early history of an ordinary nonsuppurating cystic tumor. The suppuration is ushered in with a chill, followed with fever which may extend over a considerable period; that is, there is a history of a tumor, followed by all the symptoms of infection. These suppurating cysts are extremely sensitive and eventually become excessively painful. They can be differentiated from tubal abscess in being almost always unilateral, of larger size, more regular in outline and of a different history.

Abscess of the broad ligament is difficult of differentiation from tubal abscesses of large size. The broad ligament phlegmon however is more liable to be unilateral. It invariably follows labor, abortion or miscarriage, and dates from an infection acquired at the time of or following the expulsion of the contents of the uterus. The symptoms develop more rapidly and are of a more profound nature than those arising from extension of puerperal infection through the tubes, unless peritoneal infection occurs when the symptoms of peritonitis will serve to make clear the distinction. There are seldom peritoneal symptoms with the broad ligament phlegmon variety of suppuration. Finally after the chill, the fever, the night sweats, or even earlier, the mass in the broad ligament, low and fluctuating will be discerned by the diagnostician, by proper bimanual examination. Taking into consideration, then, the history which will exclude prepuerperal infection, will exclude symptoms of endometritis, tubal infection and peritonitis, in fact, will present a history of health previous to the conception, together with the symptoms enumerated above a diagnosis of abscess of the broad ligament may with some degree of certainty be ventured.

OPERATIONS.

One of the easiest cases for a laparotomist is the removal of simple nonadherent tubal abscess. This is not to imply that any laparotomy is easy and nonimportant. Every laparotomy, no matter how simple, requires that every detail, on the part of every one who, in the remotest way comes in contact with the operation, from those preparing the gauze, the catgut, the silk, the instru-

ments, the room, the patient, the clothing, shall be carried out with the most unrelenting conscientiousness and intelligence. One weak link in the chain of details may kill the patient, no matter how simple the pathology requiring the operation. It is to be taken for granted therefore, that the details are as perfect as a painstaking and watchful experience with several hundred successful laparotomies in a well conducted institution can make them.

The abdomen is opened with a small incision, the tubes are rapidly but carefully examined with a sweep of the index finger from behind forward. If the tubes are small enough to deliver without rupturing through the ordinary incision, they are carefully delivered together with the ovary, and with great care are ligated as close to the uterus as it is possible to tie. They are then severed from the pedicle, the pedicle rendered sterile with carbolic acid or bichloride solution, carefully applied so as not to reach the peritoneum and after sponging off, the pedicle is dropped. Both sides are treated alike. If the tube is cystic and too large to deliver without danger of rupturing, it is emptied with a small aspirator before it is delivered, care being taken to place a pair of forceps over the aspirator puncture before delivery. Where there has been no adhesion and no pus has escaped into the peritoneum, drainage and flushing are unnecessary. The abdominal incision is closed, the patient is put to bed, with a nurse to watch her for the first week. These patients invariably recover if the operation has been done properly. In the series of this variety I had nine cases with no deaths and complete recoveries in all.

OPERATION ON DOUBLE TUBAL ABSCESSSES OF SMALL SIZE WITH PERITONEAL EXTENSION, SO-CALLED CELLULITIS.

These cases should only be handled by the expert. The operation is the same as the foregoing until the peritoneum is opened. Here universal adhesions are found and the mass must be unraveled without tearing an intestine and if possible without tearing the peritoneum or rupturing the tubes. Enucleation is easily accomplished by one who has had experience. This is not a process of tearing. There is a definite line of demarkation between the peritoneal surfaces which have become agglutinated, which must be followed. There are two points at which enucleation may be begun; one is just posterior to the isthmus of the tube as it joins the uterus, the other at the fimbriated extremity. Take the uterus for the landmark in enu-

cleating and pass off from its posterior surface on to the tube. With a little pressure it will begin to peel off from the tissues posterior to it. By following this lead, separating not tearing, one will soon find the whole tube enucleated and lying in the half opened hand. Work from behind, forward and from within outward. Occasionally a little care is required at the outer edge, especially on the left side, to separate the ampulla from the descending colon. After enucleation is accomplished the treatment is the same as for the simple tube. The bed from which the tube has been peeled will show many slightly oozing points on which a sponge is placed until the opposite side is treated. Before beginning to insert the sutures in the abdominal wall a glass drainage tube is placed in the most dependent part of the pelvis. Through this the oozing blood from the raw surfaces is removed. If there is half a drachm of clear blood in the tube after five minutes of waiting when it had been previously dry, the tube should be left until the oozing has ceased, the nurse siphoning it out at intervals of from one to six hours. These cases usually recover without the slightest temperature or discomfort. Of this variety I had twenty-one cases in this series with one death. All cases recovered without a fistula.

OPERATION FOR DOUBLE TUBAL ABSCESES WITH UNIVERSAL ADHESIONS IN WHICH THE COLLECTION OF PUS IS SO LARGE THAT IT RESEMBLES ONE LARGE PELVIC ABSCESS.

In these cases one proceeds to open the abdomen in the ordinary manner. Before regular enucleation can begin it is frequently necessary to peel back one or more adherent intestines, or masses of omentum from the surface of the fluctuating tumors. Then if the more prominent mass, one tube is usually much more prominent than the other, is not too large or too thin, thus endangering its rupture by slight manipulation, beginning at the isthmus of the tube as with the smaller ones, careful effort is made to enucleate it from its bed before emptying it, as it is easier to follow the outline of the tumor and accomplish its enucleation when it is distended and full. Experience must teach one, however, when not to go too far. When there is danger of rupturing it, it should be carefully emptied of its pus by the aspirator and before commencing the enucleation, the aspirator should be withdrawn and a catch forceps securely locked over the point of puncture. It should then be peeled out, if possible, without rupture. The opposite side should be handled in the same manner, the bed of the former in the mean-

time being packed with small sponges or clean gauze for the purpose of checking the oozing. Great care must be exerted in ligating the pedicles of these old masses, as they are frequently brittle and the ligature cuts through it with but little tension. Fortunately the pedicles in these cases have been such a small source of the blood supply that the hemorrhage from their macerated surfaces soon ceases. Great care should be employed to render the pedicle aseptic when it has been ligated with silk, in order that there may be no subsequent trouble arising from an infected ligature. These stumps are advantageously treated by the thermocautery when ligatures are inefficient. The use of the glass drainage tube is always a safe procedure after these extensive enucleations, in order to relieve the already overtaxed peritoneum from the task of taking care of the blood which will flow from the raw surfaces.

If by any mishap pus has escaped among the contents of the abdomen, because sponges were not properly placed as a protecting wall, it should be carefully removed by sponges and the abdomen thoroughly flushed with sterilized water, temperature 108° F. until the water comes away clear. After this a drainage tube should be introduced. If there is reason to believe from its disposition to point in that region, that the abscess lies in contact with the rectum or lower bowel it should always be rendered perfectly aseptic by repeated enemas, and should be especially prepared by antiseptic douches and iodoform powdering in order to provide against infecting the pelvis if by chance there should have been an opening between the tube and the rectum, or to guard against an accidental opening from the enucleation. If an actual fistula exists, the bowel should be carefully prepared and then moderately packed with iodoform gauze, through the center of which should pass a strong half-inch rubber tube for the escape of gases. The packing may be removed in forty-eight hours, and the fistula will give no further trouble if the abdominal operation has been successful. In my first cases I was afraid that the pelvis would become infected from the rectum. I have operated on several cases and such an accident has never occurred. A good operator can almost invariably enucleate tubal pelvic abscesses. I have never failed to do so in any case that I have attempted and I have operated on some very desperate ones. I have had forty-one cases of this variety in this series with one death, from the operation.

Tubal abscesses complicated with appendicitis should be treated on the general principles laid down by good surgery, for

these difficulties when uncomplicated. Enucleation is desirable when feasible without undue risk. When isolated, incision and drainage offer less risk.

Large single abscesses caused by suppurating dermoids, ovarian cystomas, and infected ectopic pregnancies should be enucleated if possible and treated as noninfected tumor, except that due care should be exerted to render the pedicle aseptic. When the abscess is the result of extrauterine pregnancy, is imbedded in the folds of the broad ligament and is nonenucleable, it may be attached to the abdominal incision, incised, cleaned, and drained, or if too small may be subsequently drained per vaginam.

Pelvic abscess due to broad ligament phlegmon which is seldom encountered, should be treated as broad ligament abscesses due to infected ectopic pregnancy, namely: by attachment to the abdominal incision, and drainage if of large size; if small, drainage subsequently from the vagina. Occasionally these abscesses will be found to have lifted the peritoneum to such an extent that they can be easily entered through a lateral incision without opening the peritoneal cavity. If this condition is found to exist even after median abdominal section, it may be well to close the incision and to subsequently open the abscess extra peritoneally. It should be thoroughly evacuated, cleansed and drained.

VENETIAN BUILDING.

OPTIC NEURITIS AS A SIGN OF BRAIN TUMOR.

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Blindness has long been recognized by clinicians as one of the manifestations of intracranial disease, particularly in those affections of the brain substance itself, or its envelopes that develop irritative lesions or occasion increased intracranial pressure. Long before the invention of the ophthalmoscope, the frequent occurrence of this symptom in cases of neoplasms within the skull had been carefully commented on ; but until the genius of Helmholtz made it possible to examine the interior of the eye, no satisfactory explanation of the phenomenon had been given.

At the present time optic neuritis is widely recognized as one of the most important objective signs in the diagnosis of certain intracranial affections ; and it is to the consideration of the relative value of this symptom in brain tumor, that I ask your attention this evening.

Before presenting the conclusions derived from a study of a series of cases in which either an operation or a necropsy had been done, it may be well to consider briefly the nature and pathology of optic neuritis, and also to give a short résumé of the different theories concerning its pathogenesis and its relation to encephalic disease.

The optic nerve at its point of entrance into the eyeball forms what is called the optic nerve head or optic papilla, which when viewed with the ophthalmoscope appears to be almost perfectly circular in outline, of a delicate cream color with a tinge of pink, its boundaries, formed by the edge of the scleral ring through which it passes give it a clear definition against the red background of the fundus and make especially appropriate the name "optic disc."

The nerve fibrils leaving their medullary sheaths at this point spread out into the retina which, in health, is invisible because transparent. The retinal vessels, vein and artery, emerge from the center of the optic disc and dividing into their branches ramify throughout the retina. At no other place in the body can we look upon a nerve and the blood vessels that supply it.

In health the optic disc is in color as described, with its out-

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line clearly and sharply defined ; when inflamed it is swollen, its margins blurred and indistinct, and its color changed on account of the varying engorgement of its vessels. All grades of inflammation exist from that manifesting itself by only a slight congestion and a faint indistinctness of the margins, to the intense neuritis with marked swelling and prominence of the papilla, complete obliteration of the boundary lines and a striking engorgement of its veins as is so frequently seen accompanying brain tumors. It is to this intense variety that the Germans have given the name "*stauungs papille*," or as translated into English by Clifford Allbut, "choked disc."

But it is not probable that this is anything more than a clinical distinction, for the milder grades of optic neuritis resulting from a descending inflammation present the same histological features as the more severe types, differing only in degree. It is in every sense a true inflammation. The disc is swollen, sometimes to the extent of two or three millimeters above the level of the choroid. The vessels are engorged and there may be hemorrhages. The microscope shows spaces between the nerve fibers caused by edema of the part. There is a greater or less infiltration of the structure with leucocytes, while the presence of granular cells and many free nuclei indicate the destructive degeneration of the myelin and the rapid proliferation of the connective tissue. The nerve fibers themselves are seen to be irregularly swollen and granular. Distention of the optic nerve sheath is sometimes present, and the nerve trunk itself is infiltrated with round cells.

With the subsidence of the inflammation there is a contraction of the newly formed connective tissue and an atrophy of the nerve fibers, giving the optic disc, when viewed with the ophthalmoscope, a whiter look than normal, and an appearance as if it were filled in with a soft felty substance.

The oldest theory offered in explanation of this condition is that of Graefe, which sets forth that the pronounced venous congestion present in choked disc is the result of a disturbance of circulation in the eye occasioned by compression of the cavernous sinus from increased intracranial pressure. This theory assumes that increased intracranial pressure is present in all cases in which there is optic neuritis, particularly of the intense variety known as choked disc; but numerous observations go to show that in certain conditions in which the pressure within the skull must be markedly increased, there is no sign of optic neuritis in any form.

Inflammation of the papilla in chronic hydrocephalus is very infrequent. So far as I have been able to learn, the same may be said of microcephalus, as is illustrated by two cases recorded by Victor Horseley and operated on by him, in which an ophthalmoscopic examination showed the fundus of the eyes to be quite normal. Cases are frequent in which the size of the neoplasm was great and yet had occasioned no optic neuritis, although it would be reasonable to suppose that the intracranial pressure in such cases would be considerably increased.

As suggested by Leber, if this were the cause of the venous congestion, we should expect to see the veins distended over the whole fundus, but such is not the case. One of the most potent objections to the theory is based upon the anatomical fact demonstrated by Sesemann, that the anastomosis between the anterior facial and superior ophthalmic veins is liberal enough to relieve at once any compression upon the cavernous sinus, even were that compression to the extent of obliteration.

Another important theory is that of Schmidt and Manz, which might be spoken of as the lymph space theory. Manz noted the frequent occurrence of distention of the arachnoidal space of the optic nerve in cases of intracranial growths, or in diseases of the encephalon in which there was increased pressure or an augmented quantity of arachnoid fluid. He argued that this mechanical distention was sufficient to bring about the changes in the papilla. This theory was elaborated by Schmidt, who found by experiment that colored fluids injected into the sheath of the nerve or into the subarachnoid space passed into lymph spaces at the lamina cribrosa; and he argued that it was the local irritation of the fluid on the nerve fibers as well as the dropsy of the sheath that gave rise to the inflammation. This theory also assumes the existence of increased intracranial pressure, and is the one generally held by German writers. It certainly is not absolute, as it fails to explain the existence of intense optic neuritis in those cases of brain tumor in which the autopsy shows no dilatation of the sheath of the nerve, and no evidence of increased pressure.

A third theory, that of Hughlings-Jackson, attempts an explanation of this condition on the ground that there is an irritation set up in the brain by the presence of some lesion there, resulting in a disturbance of the vasomotor system, particularly of the optic disc, followed by inflammation. This explanation was advanced also by Benedikt, and has received the support of Brown-Sequard.

Leber holds that "the cause lies in an inflammatory process transmitted along the nerve from the brain." "Intracranial tumors, as also tuberculosis, give rise to the congestion of vessels, secretory inflammation, hydrops ventriculi and increased pressure. The products of tissue change in these neoplasms, mingling with these transudations, pass with the cerebro-spinal fluid into the intervaginal space of the optic nerve as far as the eye and there acting as an inflammatory stimulus, give rise to neuritis and papillitis."

Edmunds and Lawford contend that the optic neuritis is excited by a localized meningitis lighted up by the presence of the tumor, and extending to the optic nerve.

What value can be ascribed to optic neuritis as a diagnostic sign in cases of brain tumor? Has it any value as a localizing sign, or may it throw any light upon the nature of the lesion? With a view to studying these questions a little more closely, I have examined all the literature of the last four years accessible to me, and have collected all the published cases of intracranial tumor on which either a surgical operation or an autopsy had been performed. It is possible that some escaped my search, but 161 were obtained. Of this number 37 had been subjected to operation, from which 24 died, a mortality of about 65 per cent. The number and nature of the different growths is shown in the following list.

Sarcoma.....	46	Lymphangioma.....	1
Glioma.....	25	Fibroma.....	3
Glio-sarcoma.....	13	Angioma Cavernosum.....	1
Myxo-glioma.....	1	Cysticercus ..	1
Cystic glio-sarcoma.....	3	Hydatid cyst.....	6
Tubercle.....	12	Cylindroma.....	1
Fibro-cyst.....	1	Myxo sarcoma.....	2
Serous cyst.....	8	Uncertain cysts.....	7
Gumma.....	7	Hemorrhagic cysts.....	2
Endothelioma.....	1	Not recorded.....	14
Carcinoma.....	6		161

It is thus seen that growths of the type of glioma and sarcoma with their mixed forms comprise 90 of these 161 cases.

Of the whole number of cases, 161, there was no mention of the condition of the sight or of an ophthalmoscopic examination in twenty-one; while in the remaining 140 it was distinctly stated that no optic neuritis existed in thirty-six and that it was present in ninety-eight. Mention is also made of blindness in six cases, although no ophthalmoscopic examination was made, so that these were without question cases of atrophy following inflammation of the nerve. This gives us 104 cases of optic neuritis out of 140, or

74.3 per cent. In all probability this percentage would have been somewhat greater if more frequent examinations had been made in the cases wherein no optic neuritis is reported; for it is a well known fact that this condition may be absent during the course of some cases to develop suddenly at the last, while in others it is one of the earliest signs.

A study of the accompanying table, No 1., giving the number of tumors situated in different parts of the brain, shows that many of them were in positions accessible to the surgeon.

TABLE NO. 1.

LOCATION OF TUMOR.	Optic Neuritis.	No Optic Neuritis.	Condition of Eye Not Reported.	Total.
Anterior frontal convolutions...	7	4	4	15
Motor convolutions.....	25	12	2	39
Occipital lobes.....	4	..	..	4
Hemispheres (centrum ovale)...	7	2	1	10
Corpus callosum.....	1	1	1	3
Ganglia at base.....	7	5	3	15
Temporosphenoidal lobes.....	4	1	2	7
Pituitary body and infundibulum.	4	1	1	6
Cerebellum.....	37	4	3	44
Medulla and Pons.....	5	4	1	10
Meninges at base of skull.....	2	2	3	7
Not given.....	1	..	..	1
Totals.....	104	36	21	161

This percentage of cases does not accord with that obtained by Annuske and Reich, who in 1873 and '74 collected eighty-eight cases in which autopsies had been made and found optic neuritis in eighty-four or ninety-five per cent. It is possible that as Gowers says, these cases were recorded during the period when ophthalmoscopic observation possessed the interest of novelty, and a far larger proportion of cases with than of cases without neuritis has probably been published. The cases in the present table however, are those that occurred during a period of four years, and include all fatal cases upon which autopsy was made as well as those operated on, except a small number the records of which were not available.

Gowers' experience leads him to say that neuritis occurs in about four-fifths of the cases of brain tumor. Edmunds and Lawford in a series of 107 fatal cases, found neuritis in sixty-eight, or 63.5 per cent.

The results of the analysis of this series, therefore, with regard to this point, agree more nearly with the views of those observers who recognize the frequency of the occurrence of this phenomenon but are not inclined to regard it as invariably present.

A further study of these cases shows the infrequency of one-sided optic neuritis. In only four was this recorded. In Case 4 a sarcoma of the vermiform lobe of the cerebellum extending into both hemispheres caused neuritis of the right eye. In Case 62 glioma involving the whole of the pons caused neuritis of the left, while in Case 80 a glio-sarcoma of the corpus callosum extending downward from the roof of the left lateral ventricle excited slight optic neuritis in the right eye. In Case 130 a glioma of the left optic optic-thalamus caused choked disc of the right eye. These figures are in accord with those of Annuske and Reich, who found in their series of 88 cases unilateral neuritis in but two.

In ten cases it is distinctly stated that, although there was double optic neuritis, this condition was more pronounced on one side than on the other. In eight of these cases, Nos. 7, 32, 38, 39, 58, 63, 89, 119, the worse neuritis was found to be on the same side as the tumor. In the two remaining cases Nos. 51 and 101, the tumor was situated on the right side and caused left-sided neuritis in the former, while in the latter the tumor was centrally located in the pons. A more careful attention to this point in the examination of cases might show that this unequal degree of inflammation is more common than has been supposed, and might furnish at times valuable diagnostic evidence.

Every variety of tumor mentioned, with the exception of lymphangioma, cysticercus and cylindroma was associated with optic neuritis. The exceptions have little weight inasmuch as only one case of each kind appears in the list. It seems worthy of note, however, that of the twenty-three cases of glioma recorded, eighty-three per cent showed this sign; while the forty-one cases of sarcoma gave eighty per cent of optic neuritis.

This apparently more frequent occurrence of papillitis in connection with these growths may probably be explained on the ground that they infiltrate the brain structure and damage the nerve elements more readily than do cystic or fibrous tumors which exert their malign influence more by mechanical compression. It may be that the products of tissue change in growths of this class are more irritating to the nerve structures, and therefore cause more readily a descending inflammation, or, coming into contact

with the head of the optic nerve through the medium of the fluids in the optic sheath, as Lebers' theory suggests, occasion a direct irritation to this part.

This irritation of the nerve elements is also a possible explanation of the occurrence of optic neuritis in brain abscess, which would probably be noted more frequently if the cases lasted longer. It has been said that papillitis is an infrequent occurrence in cerebral abscess, but of thirteen cases, the histories of which I examined, ten had notes of optic neuritis. Jansen in a tabulated report of forty-four cases of sinus thrombosis finds optic neuritis considerably more frequent in those complicated with brain abscess.

The cerebellum is the most common seat of tumors of the brain. Regardless of the nature of the growth, tumors in this locality occasion optic neuritis more frequently than those in any other part of the encephalon. My notes show that 90 per cent of the cases presented this symptom. It was also not infrequent in those cases in which the tumor was located in the motor area or in the meninges covering that part, for it was present in twenty-five out of thirty-seven cases, or sixty-seven per cent.

Optic neuritis may develop before any other symptoms of brain tumor manifest themselves or it may occur at any time in the course of the affection. Sometimes it develops a short time before death in an intense form; an attempted explanation for this is that the neoplasm in such cases takes on a more rapid growth.

It may be present without there being any apparent visual disturbance, so that it should be looked for at once in all cases of suspected tumor. Such a case is recorded by Ackermann in which marked double optic neuritis developed in the course of a case of cerebellar tumor with no reduction of the vision up to the time of death. Such cases would however, in all probability, show a contraction of the visual fields and an increase in size of the normal blind spot corresponding to the area of inflammation of the retina around the nerve. The increased size of the blind spot may be present before there is any contraction of the visual fields or loss of central vision, and would then be detected only by perimetric measurement.

One very interesting and suggestive visual disturbance in these cases, and important because an early symptom, is that of periodic attacks of blindness or dimness of sight. This blindness appears in paroxysms lasting from a few seconds to half an hour, and disappears as suddenly as it comes. In the intervals between such attacks

the vision is perfectly normal, but the attacks are more frequent in some cases until the sight becomes permanently obscured. I have been able to find mention of this symptom in only four of the histories that I examined, but it is emphasized so strongly by no less an authority than Hirschberg that it deserves careful attention. It was originally described by Hughlings-Jackson as epileptic amaurosis and is explained by Leber as due to a sudden swelling of the tumor and consequent pressure of the distended ventricles upon the optic chiasm, the corpora quadrigemina or the thalami.

It is very desirable that more accurate records should be obtained of the changes that occur in the field of vision, particularly before signs of optic neuritis are visible. Measurements with the perimeter would probably show, quite frequently, defects in the fields for white as well as colors, in other cases than those presenting the phenomenon of hemianopsia.

The blindness that occurs as a result of optic neuritis, is, as a rule, not so sudden in its onset as that occasioned by pressure of the growth on the optic tracts, or by an involvement of the visual centers in the occipital lobes. With the subsidence of the swelling of the optic disc it may be found that considerable visual power remains, and this fact has an important interest in those cases that are subjects for operation, in that the removal of the tumor if performed early enough and successfully, may not only restore the patient to health, but may also cure his blindness, if atrophy has not succeeded to the inflammation.

A remarkable case of this kind is recorded by Erb. A woman forty-seven years of age had experienced epileptiform seizures of the left side since the age of thirteen. There were head symptoms pointing to brain tumor, which was localized in the middle part of the central convolution of the right side. The sight was considerably impaired and there was marked double optic neuritis. An operation was done by Czerny and a glio-sarcoma occupying the region mentioned, was scooped out with a sharp spoon, leaving a defect in the brain 5 cm. long and 5 cm. broad. The patient made a prompt recovery, and was dismissed from the hospital three weeks after the operation. Five months subsequently she was examined again; the power of the leg, as well as that of the muscles of the face was restored; the arm was still weak; sight was completely restored and the optic discs had resumed their normal appearance. Four months later, there was a recurrence of the growth and a return of the seizures. The eyes,

however, remained quite normal, except that the right papilla was somewhat more prominent and there was no disturbance of vision. An operation, similar to the first, was again done, followed as before by an uninterrupted recovery. Six months later there appeared signs of another recurrence, the arm being affected with convulsions. The eyes however, did not show any evidences of optic neuritis.

Another case reported by Gibson was that of a man aged forty-three, who developed symptoms of tumor in the motor area of the right side. The acuity of vision was normal and the visual fields were unaltered. There was, however, double optic neuritis. An operation for removal of the tumor, which proved to be a gliosarcoma, was successfully done and followed by recovery. At the time of the report the optic neuritis was disappearing. In such a case, owing to the successful result of a prompt operation, it is reasonable to presume that there will be no damage to the sight.

Two cases reported by Bramann show a similar fortunate outcome. In the first case, after the removal of a myxo-sarcoma from the left midparietal region there was recovery and disappearance of a choked disc that, before the operation, was marked. The pupils which were unequal before, became of the same size after the operation.

In the second case there was left-sided paralysis and head symptoms in a man twenty-nine years old. There was optic neuritis in both eyes, but the right disc was more swollen than the left. At the operation, a spindle-celled sarcoma 8 cm. long and 7 cm. broad was removed from the central convolution of the right side. Recovery followed, the pupils became of equal size and vision improved so that large type could be read at one meter. The field remained strongly contracted, the right disc was somewhat atrophied, but the optic neuritis disappeared.

Of the thirteen cases successfully operated on, one showed no improvement in sight after the operation for the reason that there was complete blindness due to nerve atrophy. In the histories of six it is stated that an improvement took place, both in visual power and in the intraocular condition. No mention of subsequent examination of the vision was made in four of the records of cases, while in two there had been no optic neuritis and no impairment of sight prior to the operation.

The conclusions derived from a study of these cases are against the theory that intracranial growths bring about optic neuritis by an increased pressure within the skull; for tumors no

larger than a hazel nut may be accompanied by this condition, while others of immense size may encroach upon the brain without causing any trouble to the eye.

It seems probable that those tumors which cause the most irritation either to the brain itself or to the meninges are the ones that most frequently give rise to this symptom. The malign influence may operate either by bringing about a descending inflammation of the nerve fibers as suggested by Gowers, or by carrying through the fluids in the sheath of the nerve some morbid material, as claimed by Leber.

If there be double but unequal optic neuritis, the side on which the more intense inflammation exists is probably the side of the lesion in the brain; similarly, the papillitis is likely to begin first, and the visual disturbance to be more marked on that side.

The importance of early and repeated ophthalmoscopic examinations as well as records of the visual power and the condition of the fields for white and colors should be emphasized.

Finally the conclusion is inevitable that in the brilliant advance of modern brain surgery there will come a day of more complete knowledge when in feasible cases earlier recourse to operative measures will attempt to save not only life, but that sense without which life itself is a burden.

70 STATE STREET.

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DOCTORATE ADDRESS DELIVERED AT THE COM-
MENCEMENT EXERCISES OF THE CHICAGO
VETERINARY COLLEGE, MARCH

22, 1894.

By ARTHUR R. REYNOLDS, M. D., CHICAGO.

COMMISSIONER OF HEALTH.

When I was honored by an an invitation to address you to-day, my thoughts naturally reverted to that individual known to me as the horse doctor, a person whose legitimate occupation was of the most dubious and chimerical nature, whose real diagnostic ability lay in the fact that had his skill been sought earlier there might have been a complete recovery where now death stood awaiting the poor animal. This fellow to-day is looked upon in the light of a very amusing personage, whose great skill in the matter of swapping horses and getting the best of the deal was pretty generally conceded. In fact, this delightful trait was invariably in much greater preponderance than the power to triumph over disease or death.

Horses and other animals are nowadays taught and trained, not broken. Thanks to the all powerful lime light of research adopted by the modern school of veterinarianism the dark days of tyranny and oppression of those best of friends to mankind have passed into ancient history.

The changes that have been made in veterinary practice owing to the introduction of scientific knowledge from bacteriology and pathology have been as great as those in human medicine. A new impetus and a new understanding was given when Pasteur's investigations on anthrax and chicken cholera were made known. Since then a broad prospect has appeared for an extended application of similar investigations in other diseases. Bacteriology has wrought great changes in the practice of human medicine, but these changes have been largely in the department of surgery, where, as you know, operations formerly considered as absolutely fatal, are now carried out with impunity. The impossibility of experimenting upon the human subject has rendered the application of attenuated virus and antitoxines in human internal disease very difficult and unsatisfactory, but in veterinary practice the necessary experimentation and observation for rational application of such remedies are easily accomplished. The great public interest that has been taken in the agitation of State and national regulation of live stock and its sale in the markets requires that every veterinarian take

close interest in the enactment of such laws. They are the men most fitted to advise upon these questions, and to them the generally informed person turns for explanation. Their close relations with breeders and raisers of animals give possibility of understanding both sides of the question, and on this account it is possible that laws may be enacted or modified so as to more properly fit the conditions that exist between the individual and the State.

No inspection of food producing animals is complete without the coöperation of the individuals subject to inspection, and there must be a mutual feeling of watchfulness on both sides. It will be the duty of the veterinarian to cultivate this and to demonstrate the possible gains, and that it will not pay for the raiser to send diseased animals to the market. He must send a product that will pass inspection and his veterinarian will often be required to designate its quality.

The great general law surrounding diseased animals and their products are frequently abused in individual cases. The milk from consumptive cows in which the diagnosis of tubercule has been made, is frequently permitted upon the market. Public safety cannot be preserved under such conditions. The importance of this can best be understood when we consider that many of the diseases that afflict the lower animals are common to the human race as well, and may be communicated directly to man from them, sometimes by direct infection, sometimes by eating the flesh of the animal so diseased or by drinking the milk of cows.

Among the diseases common to both man and animals may be mentioned: Tuberculosis, glanders, anthrax, hydrophobia, tapeworm and other parasitic affections of the intestines, and actinomycosis or lumpy jaw, scarlet fever and possibly diphtheria. Smallpox exists in cattle, horses and sheep and possibly other animals; that it may be contracted by man perhaps is not proven, yet we have in this one of the greatest boons to humanity, as it is known to all the world that the inoculation of man with cowpox protects him from smallpox. There is a well defined suspicion, if it is not positively proven, that scarlet fever spreads from animals to man.

It has become an established fact that the medicine of to-day and the future is preventive medicine, and the trend of all research is to prevent disease and save the necessity of treating it, so that the veterinarian who treats and who prevents disease in animals, or who properly treats it and prevents its spread, is not only a

sanitarian but a humanitarian and on the same plane as practitioner of human medicine.

Our federal government recognizing the advancement that has been made in the treatment of all diseases afflicting our domestic animals and for the welfare, health and happiness of mankind generally, has given to veterinarianism a prominent place in the Department of Agriculture known as the Bureau of Animal Industry, whose duty it is to see that no contagious diseases are disseminated amongst animals. The completeness with which this plan is developed can alone insure us from manifold dangers which threaten our lives and our homes.

We have in every state and large municipality in our country local boards of health whose aim it is to prevent disease, yet our national government is making no well regulated effort in this direction. For several years the American Medical Association has been working to secure in our federal government a department of public health with a medical man as a cabinet officer to preside over it. A bill is already before congress to make this provision, and we should all earnestly work for its success. In this department of public health should be placed the Marine Hospital Service, the Bureau of Animal Industry, the Quarantine Service and all other medical Bureaus that exist, so that the prevention and treatment of diseases in both man and animals, derived as many of them are from common origin, could all be managed from the same head. Through this department could be taught the lessons learned through veterinary studies and their application made for the benefit and glory of mankind.

The scientific breeding of animals is being ably and nobly fostered, and with such great skill and care that we no longer guess at the result, but can determine almost to a certainty what the form, color and speed of an animal may be even before it is born, by a thorough acquaintance with the habits, traits and characteristics of its progenitors. The results of this wonderful care and skill in the reproduction of animals are seen and felt in all directions. The magnificent trotting horse of to-day is a startling example of their methods. His speed is beyond the dream of a generation ago. So it is among all domestic animals where such great care is taken for their improvement, and human kind may blush in well deserved amazement at their shortcomings in this direction. If these same principles of careful selections were applied to mankind and directed from a national department of health, the evils resulting from a marital union of drunkard, madman, harlot, thief, crank or con-

sumptive would be an utter impossibility. All these could be early apprehended and prevented from reproducing any more of their miserable and worthless progeny. Add to this properly directed methods of training and teaching, and above and beyond all surround every one as far as possible, especially the young, with proper home influences. Do all this for mankind and but few generations would be required before the asylums for the insane and prisons for cutthroat and thief now filled from attic to cellar all over the land at an enormous public expense would be reduced in number an hundred fold. Give us a race of men propagated with such scientific perfection and the occupation of the rumseller would be gone, for there would be but few to purchase his unholy goods, and men and women would not be left to fester in prison cells.

If this theme upon which I now dwell may seem somewhat Utopian, the time is not far distant when the high pressure civilized man and the license given him by this untrammelled liberty must defeat its own end. To-day the mating of two people unqualified by the inheritance of hereditary traits or rather taints, absolutely dwarfs, the attributes derived from a higher civilization and education.

When we look upon these methods and calculate upon the wonderful results in the animal realms, why should not the spirit of emulation move us toward the same glorious end so that in generations yet to come man may stand forth nobler and grander for the improved conditions emanating from and surrounding him.

TWO CASES OF GENERAL SUPPURATIVE PERITONITIS
FOLLOWING THE RUPTURE OF A PYO-
SALPINX DURING LABOR. —
DEATH. AUTOPSIES.

By RICHARD BARTLETT OLESON, M. D.

HOUSE OBSTETRICIAN COOK COUNTY HOSPITAL.

When a series of over eighteen hundred consecutive cases of labor without a maternal death terminates in two such deaths within a short space of time, under identically the same obstetrical treatment that had been pursued in the previous cases, it would seem as though the fatalities might possibly present points of interest to this society, especially as an autopsy was performed upon each woman.

On December 19, 1888, a woman in ward 14, who had been in the obstetrical department for over two months, died of eclamptic convulsions shortly after delivery. From that date until December 30, 1893, 1,839 women, over eighty per cent of whom were primiparae, were consecutively delivered in ward 14 without a single death. This series merely includes all those women who entered the hospital otherwise than in articulo mortis, *i. e.*, those women over the latter part of whose period of gestation we were able to exercise some control. It excludes about half a dozen cases of neglected transverse presentations, brought to the hospital only to die, after all the resources of the outside obstetrician toward delivery had failed. It is needless to say that these last cannot be called hospital cases in any sense of the word, except in so far as that they died within hospital walls.

1. D. H. entered the hospital to the service of Dr. Watkins December 6, 1893. Her history was, briefly, as follows: Married, twenty-two, American, unipara. Family history good. Patient reports herself as very susceptible to disease, has had all the usual children's diseases, typhoid fever, pneumonia, and suffered severely two winters ago with la grippe. Her first child was born in June, 1892, at about the eighth month of gestation. Labor was very difficult and tedious, terminated by the use of forceps. An attack of puerperal fever followed, which kept her in bed for nearly two months. Upon finally arising, she slowly regained her strength, and has felt well ever since, save for slight gastric disturbances in early months of present pregnancy. She last menstruated early in April.

Read before the Cook County Hospital Clinical Society, March 1, 1894.

Examination showed patient to be of a somewhat phthisical build, with a history of incipient consumption. The left apex was found to present the physical signs of beginning consolidation. No other thoracic or abdominal lesions discovered. The urine was rather scanty, but negative. The fetus presented in the O. L. A. position, caput mobile. The fetal heart rate was 160, clear and distinct. The pelvis was contracted, a Justo-minor pelvis of slight degree. The cervix was deeply lacerated bilaterally, otherwise the uterus and adnexa were considered to be normal.

Labor occurred on Christmas morning and was quite rapid. As I was out of town my colleague, Dr. Tinen, attended the patient. There was nothing worthy of note about the labor save its extreme rapidity.

I saw her that evening. Her temperature was 100.8° and her general condition not good. She complained of pelvic pains which was relieved by a slight kneading of the uterus, and considered to be due to afterpains. Her pulse was weak and rapid, the face anxious, her entire aspect that of one in the early stages of some acutely painful disease. The next morning, however, her temperature was 98.2° and she felt much better. I was as much relieved as the patient, but only for a little time, as that afternoon she had a decided chill and her temperature reached 103.4° . Subjectively, the only complaint was of pain in the left side of the chest, there was now no abdominal distress, and the lochia were normal. Remembering the apical consolidation I at once thought of a pneumonia of that side. On examination only a few moist râles could be heard. As the patient's general condition was rapidly growing worse, I transferred her to the gynecological ward, early on the following morning. Here a history of obscure febrile attacks throughout her period of gestation was obtained. Examination revealed some slight abdominal tenderness and tympany, but nothing more than is frequent in the early part of the puerperium. A distinct friction rub could be felt and heard over the lower part of the thorax on the left side, with many moist râles. No indication for uterine curettement could be found, the lochia continuing normal. The patient remained in the same general condition for the next two days, growing steadily weaker. No signs nor symptoms referable to abdomen nor genitalia. Excessive pain complained of in left side. Temperature ranged between 100.2° and 102° . Early on the morning of December 30, the pulse rate reached 140 and the temperature 103.6° , and shortly afterward the patient died rather suddenly.

An autopsy was performed by Drs. McGrew and Clausen which revealed a general diffuse suppurative peritonitis. The uterus was found well contracted, the cavity empty, clean and sweet. No signs of placental infection nor decomposition. The adnexa on the right side were normal. The left tube was very much injected, and upon pressure several drops of a purulent fluid were caused to exude from the fimbriated extremity, which lay free in the abdominal cavity.

In the lungs nothing was found save the apical changes with a diffuse bronchitis. A few fresh adhesions in the pleural cavity.

The second case was that of S. F., admitted to the service of Dr. Watkins, December 24, 1893. Family and personal history negative. No venereal history obtainable. Patient is a strong healthy unmarried primipara. Hungarian, of very sturdy appearance. Pelvic measurements normal. The presentation and position of the fetus could not be made out at the first examination, so bimanual exploration of the pelvic viscera was made repeatedly, under strict asepsis, until finally the presentation was diagnosed as longitudinal, the position as O. L. A. Labial edema was well marked* but no other structural abnormality discovered. The fetal heart tones were heard on the left side, high up above the umbilicus. 146 to the minute, distinct. Urine normal.

Labor set in at about 7 P. M. of January 15. Examination per vaginam under aseptic precautions showed the bag of waters to be ruptured and the amniotic fluid to have all drained away. The cervix was about the size of a dime, hard and rigid. Not expecting labor to terminate for some time, I left the ward. Just before midnight, less than five hours afterward, I was hurriedly called, and upon reaching the confinement room found, much to my surprise, the child already born, without any aseptic precautions other than the ordinary cleansing of the mother's genitalia. Otherwise the labor was quite normal. The patient then passed into the hands of Dr. McGrew, with the change of services, and later, upon transference to the gynecological ward, into those of Dr. Clausen. To both of these gentlemen I am therefore indebted for their notes and memoranda upon this case.

For thirty-six hours after delivery all went well. Then on the afternoon of January 17 the patient had a chill, her temperature reaching 103.2°. She was promptly sent over to the gynecological ward. Here it was thought best to clean out the uterus, which was accordingly done. Nothing found save a few odorless shreds of placental tissue.

The next day her temperature was 105° and she grew rapidly worse. Became quite tympanitic and somewhat delirious. No effacement of liver dullness, however, and no vomiting. Constipation absolute.

Repeated uterine curettement was practiced, with no ameliorative result whatever. January 20 her temperature reached 106.4° , the next day 108.2° , with a pulse of 164. She was now in collapse, and remained so until she died that afternoon.

Four days later I performed an autopsy, assisted by my colleague, Dr. Tinen. General diffuse suppurative peritonitis was present. The uterine cavity was absolutely empty, and showed no signs of infection; the uterus was well contracted down, and the adnexa on the left side normal. On the right, however, everything was matted together by old adhesions. The tube was injected, elongated, constricted and tortuous. From the enlarged free end about 3ij of pus was readily expressed. The tube was patent about as far as its middle, where it opened into a cystic dilatation with greatly thickened walls, filled with pus, and communicating with a similar cavity in the broad ligament just below it. Beyond this cyst toward the uterus the cavity of the tube was obliterated. No other abnormalities whatever found in the body.

The writer was unable to discover any anatomical reason for the comparatively good health of the patients during the first twenty-four hours. In each case there was no obstacle to the free outflowing of the pus, and it would seem as though symptoms should have resulted at once, upon the end of labor.

CONCLUSIONS.

1. Particular attention should be paid by the obstetrician to a history of slight obscure febrile attacks during gestation, especially when there is any discoverable cause for a possible pelvic lesion. These attacks are generally referred to as "malarial" by the patient, but in a nonpaludal region, if quinine does not vanquish them, and an examination of the blood reveals nothing, the pelvic viscera may be looked to with decided profit.

2. In addition to the usual examination as to the condition of the urine, position of fetus, size of pelvic straits, etc., there should be in every case an attempt to discover the condition of the uterine adnexa, with an especial view to the possible existence of purulent collections, the limiting adhesions of which are particularly liable to yield to the terrific strain upon the whole pelvic contents in childbirth. In the class of cases usually seen by the members of this society this will be found somewhat difficult, but where one is able

to examine a woman before the ninth month of gestation the procedure should be fairly easy, and easy in direct proportion to the earliness of time at which the accoucheur is retained.

3. It should be regarded as an obstetrical axiom that no woman with a pyosalpinx should ever be allowed to enter labor carrying this pus in her body. Undoubtedly many a woman has gone through labor safely in spite of the existence of this condition, but it never can be considered as anything short of an accident, which ought not to again occur. The powder magazine was there, the match was applied, but for some reason the powder did not burn. If all the statistics could be known, undoubtedly even such a *dernier resort* as Cæsarian section, would be found to offer better results both as to mother and fetus, than the persistence of the pyosalpinx unmolested, especially an aseptic Cæsarian section performed as an operation of convenience and election.

4. If a woman with a pyosalpinx has once entered upon labor there is then no precaution, short of a laparotomy, which may be taken by the obstetrician, that can avail him anything in the prevention of general peritonitic infection. No detail of strict asepsis should be neglected, yet in spite of all endeavors tearing of the slight adhesions about the tube may occur, with most lamentable consequences.

5. It is especially noteworthy that in both of these cases labor was very rapid of completion and the pains strong and expulsive. Evidently this fact has direct bearing upon the causation of the rupture of adhesions.

6. Contrary to the general idea, the fact that over twenty-four hours have elapsed since the delivery of the placenta with no bad symptoms whatever, does not militate against the diagnosis of general suppurative peritonitis, due to a ruptured pyosalpinx, and the possibility of this affection should be always considered if a sudden rise of temperature occur for which no other local nor general causes may be found.

7. The early diagnosis of this affection is especially difficult, because :

a. The abdominal parieties are very much relaxed, thus requiring considerable gaseous distention to exist before tympanites is noticeable or the liver dullness interfered with.

b. The prevalence of afterpains is so universal that the first subjective symptom, the danger signal, may be entirely overlooked,

being attributed to a cause entirely separated from the true one.

c. In at least a certain proportion of cases collapse, vomiting and abdominal pains may be entirely wanting, and symptoms be referred to another part of the body.

8. Once developed, any intrauterine measures looking to the relief of this disease are worse than useless, only serving as a means of wasting priceless moments. There is but one treatment affording the least chance of help, immediate laparotomy under strict asepsis with drainage, aided by free saline catharsis.

A CASE OF IDIOPATHIC ENLARGEMENT OF THE HEART WITH AUTOPSY.

By ROBERT H. BABCOCK, A. M., M. D., CHICAGO.

January 20th last my opinion was desired in consultation on the condition of Mr. M., a clergyman, aged 54 years, weight 218 pounds, height 5 feet 11 inches; native American. His history was rather meager, that of family being entirely negative. Patient declared he had never had a day's serious illness in his life until the beginning of his present attack. About six weeks prior to my visit he had been seized with vomiting and purging, which symptoms he considered due to that popular and even medical scape-goat, "la grippe." The next day he undertook a railroad journey to New York City. Soon after his arrival there he developed dyspnea, which persisted to the date of his death as his chief complaint. Its striking feature consisted in the regularity of its occurrence during sleep. He was not conscious of it when awake, even if walking about; but he was sure to be awakened by the dyspnea whenever he fell asleep day or night. Careful inquiry subsequently elicited history of his having taken part in a friendly foot race two years before, when in northern Michigan; but, so far as he knew, it had not been succeeded by any ill effects.

Patient was sitting up; casually observed seemed in health. His one complaint was shortness of breath that invariably woke him out of sleep. He had a slight cough that had troubled him somewhat for weeks, or a few months; loss of strength; pain was not complained of, appetite good, bowels regular, temperature normal, pulse 80, tense, not intermittent, but of poor volume.

PHYSICAL EXAMINATION. Chest large and round, abdomen greatly enlarged, and containing much gas; no edema and no marked cyanosis; no visible cardiac impulse; the arteries accessible

to touch felt soft and elastic. Percussion revealed normal pulmonary resonance, except in the right infrascapular region where the note was impaired; the lower borders of the lungs were at the level of the upper border of the fifth rib, mammary line. Auscultation disclosed vesicular respiration with rather numerous subcrepitant rales at both bases posteriorly. The limits of the heart were so difficult of determination owing to the voluminousness of the lungs, and the thickness of the subcutaneous fat, that the actual size of the heart could be determined only by auscultatory percussion. The organ was then found to extend from three fingers' breadth to the right of the sternum transversely at level of upper margin of the fourth rib to fully two fingers' breadth outside of the left nipple; along the left parasternal line deep cardiac dullness reached from the upper edge of the second rib to the upper margin of the fifth where it blended with that of the liver. The breadth of the chest was so ample as to make the left nipple situated about four inches to the left of the sternum. It was therefore an enormously enlarged heart. On auscultation the first sound at apex was muffled and feeble, and succeeded by a heaving or jogging sensation communicated to the head through a uniaural stethoscope; the second accented; in aortic area both sounds weak; over body of sternum and to left at level of third costo-sternal articulation, there was a highly accentuated impure second sound, that in the dorsal decubitus closely resembled a short diastolic murmur at times. Above and slightly within the left nipple the sounds assumed a slow and not quite perfect gallop rhythm.

Percussion and palpation of the liver gave negative results, owing probably to the distention of the belly, which thus crowded the liver and diaphragm upward against the heart and lungs.

Urine analysis was not made at that or any other time by me in consequence of the attending physician's statement of such an analysis having been made by Dr. H. M. Lyman and himself with entirely negative results, as to evidence of organic renal disease.

My diagnosis was, great enlargement with preponderating dilatation of the heart and exhaustion of the left ventricle; hypostatic congestion of the lungs, specially marked in the lower lobe of the right lung; corresponding venous hyperemia of the abdominal viscera; pressure upward upon the thoracic organs by the distended and corpulent abdomen. The question presented itself as to the integrity or degeneration of the heart muscle, and I pronounced against fatty degeneration and in favor of this being an example of idiopathic enlargement, produced by prolonged high arterial ten-

sion, consequent upon *luxus* consumption in an individual of sedentary pursuits, and not upon chronic vascular or renal changes. I was led to believe *luxus* consumption had played the all important etiological role, because of the patient's corpulence and profession, it being generally recognized that men of his cloth are great feeders.

The exciting factor in the cardiac dilatation and insufficiency was thought to be the attack of vomiting and purging two months before, acting on an organ already enlarged and perhaps overstrained by the foot race two years previously; for running is notoriously dangerous for obese individuals of middle age or over.

The prognosis was pronounced unfavorable, mainly on account of the character of the dyspnea.

Four ounces of compound infusion of senna was ordered; the digitalis and nitroglycerine stopped, and cardiac stimulents substituted. Carefulness of diet and physical inactivity for a while were enjoined.

Two days subsequently, when patient was again seen, he expressed himself as feeling somewhat less oppressed by reason of the purge. The rate of the pulse was between ninety and one hundred to the minute. A sphygmographic tracing at this time showed a pulse of low tension, with scarcely perceptible tidal wave. At my first examination the patient's pulse felt tense to the finger, and I explain the low tension shown by the tracing by two factors: The freer outflow from the capillaries consequent upon catharsis; and, in the second place, feeble systole of the left ventricle.

My reason for rejecting the assumption of fatty degeneration of the heart, a most reasonable one in consideration of the patient's corpulence, lay in the fact that such degeneration is far less often discovered post-mortem than is generally supposed, except it be acute fatty degeneration depending upon febrile illnesses, etc., and that chronic form associated with certain other changes in the cardiac muscle in consequence of coronary sclerosis. As a matter of fact, according to the assertion of no less an authority than Fraentzel himself, the so-called fatty heart is rare as a primary condition; unless it be in certain acute febrile and blood diseases. The apparent absence of arterio-sclerosis and of symptoms of coronary sclerosis seemed to warrant the exclusion of fatty degeneration secondary thereto.

Urine gave negative results; the arteries felt soft; and hence I could discover no etiological moment save that of *luxus* consumption. I saw no reason to assume fibroid degeneration of the

heart walls, as there was nothing on which to base an assumption of structural changes and occlusion of the coronary arteries. Valvular disease certainly did not exist; neither were there history or signs of previous pericarditis and adhesion or obliteration of the sac. By exclusion, therefore, I was narrowed down to my diagnosis stated above.

As was foreseen, treatment proved unavailing; dyspnea continued, slight edema appeared and after another purge disappeared, weakness increased and sudden death occurred February 6th, a little more than two weeks after my first visit. Post-mortem examination thirty-six hours after death was kindly performed by Dr. Bertha Bush whose report is as follows:

AUTOPSY: Rigor mortis was inordinate and there was considerable lividity of dependent portions. The undertaker had previously injected a strong arsenical solution into the right brachial artery.

The peritoneal cavity contained about four ounces of reddish fluid.

The chest: Right pleural cavity contained about three pints of clear dark reddish fluid. Left pleural cavity contained about one pint of similar fluid. No adhesions on either side.

The Lungs: In both lungs the lower posterior portions were smooth on the surface, dark red in color, solid, not crepitant, and small pieces sunk in water. These portions showed a moist cut surface from which a dark red, watery fluid could be expressed. The upper and anterior portions of both lungs showed a light gray color and were crepitant.

The Heart: Extended one and a half inches beyond the right sternal border, and about two inches to the left of the left nipple. The pericardium contained about two drachms of clear yellow fluid. Very little epicardial fat. The cavities of the heart and the great vessels were distended with soft grayish red clots, very crumbly, and possibly due to the arsenical injection.

The Valves: The aortic and pulmonary valves were competent to the water test. The mitral orifice admitted four fingers, and the tricuspid five, loosely. All the valves were normal in appearance.

The Arteries: The arch of the aorta was free from calcareous deposit. The coronary arteries were thickened and slightly calcified, a small patch, about half an inch from the aorta, occurring in the right but not occluding the artery. On the surface of the left ventricle, near the septum, were a few small "milk spots."

The cavities of the heart were larger than normal and their walls much increased in thickness. The heart was more than twice as large as the owner's right fist. The substance of the heart was firm, reddish brown in color, with no areas of softening.

Abdomen: The stomach and intestines seemed considerably distended with gas, but otherwise normal. The vermiform appendix was about two inches long, was free, empty and had a mesentery.

Kidneys: The left was larger than the right. Capsule adherent. On section three small round cavities, one-fourth inch in diameter, were found, containing a yellowish fluid. Cortical markings distinct. The surface presented no irregularities.

Right Kidney. Capsule easily stripped off. Surface showed a number of yellow areas, varying in size up to one-half inch in diameter. These areas extend half way to the pelvis of the kidney and are wedge shaped on section. Some subcapsular hemorrhage. Structure soft, color dark red and yellowish in parts.

Spleen: Somewhat enlarged, friable, smooth, dark brown in color.

Pancreas: Apparently normal.

Liver: Extensive firm adhesions between the upper surface of right lobe and diaphragm, so that separation was difficult, and parts of liver substance tore off. Appearance of "nutmeg" liver. Lobules fairly distinct. Liver not enlarged, and its substance was soft.

Gall Bladder: Contained a little bile and its duct was patent.

Urinary Bladder, contained a small amount of fluid like urine.

Slides of the kidneys were submitted to Dr. C. W. Purdy; and similar ones, as well as of the heart, aorta and liver, to Dr. Ludwig Hektoen. Their very kind reports are as follows:

CHICAGO, March 28, 1894.

MY DEAR DOCTOR BABCOCK:—An examination of the slides you furnished me shows that the chief pathological changes in the kidneys are those of typical venous stasis; engorgement and distension of the vessels is everywhere apparent. Many of the glomeruli are enlarged one-half, or even double the normal size, their vessels being distended with blood. The intertubular spaces are also enlarged and packed with blood corpuscles, and the vasa recta partake of the same engorgement. In addition to these changes there is marked sclerosis of the arterial vessels with the usual thickened tunics. The capsules of the kidneys are unchanged, and primary interstitial changes in the cortex are absent, or at least only those common to venous congestion consequent to cardiac disease being observable. No marked changes were observed in the tubular epithelium, other than those usually accompanying passive renal hyperemia.

Very sincerely yours,

CHARLES W. PURDY.

CHICAGO, April 5, 1894.

DEAR DOCTOR:—Examination of the specimens given me by Dr. Latham shows the following:

Kidney: In the cortex the vessel walls are greatly increased in thickness; many glomeruli are obliterated, others have a thickened capsule; there are areas of atrophic tubules in the cortical labyrinths and in such districts the fibrous tissue is well marked; there is also well marked increase in the interstitial tissue of the cortex in general and the epithelium lining the tubules is frequently absent.

Liver: The vessel walls in Glisson's capsule have very thick walls and the amount of fibrous tissue in the capsule seems increased.

Heart: The specimens do not contain any large coronary branches, but the smaller ones present show very thick walls; the amount of scar tissue in the heart specimens is considerable, and often quite extensive districts of myocardium are entirely replaced by cicatricial tissue while the interstitial fibrous tissue in general is thickened and increased. There are no evidences of fatty degeneration in the myocardium in these sections all of which come from the left ventricle.

Yours sincerely,

L. HEKTOEN.

DEAR DOCTOR: I have just examined the specimens that Dr. Purdy used, and I find that it was a specimen from the left kidney that I originally examined, and that the evidences of congestion are much better marked in the right kidney, but at the same time the chronic interstitial changes in both kidneys are extraordinarily far advanced if they be regarded as secondary to a renal passive congestion of six to eight weeks duration. In my opinion the chronic changes in the vessels, and in the kidney substance too, must have been present quite a long time before the break in the cardiac compensation occurred. At the same time I yield before such men as Dr. Purdy. From the standpoint of pathologic anatomy alone one could not say how the chronic fibroid changes originated, but they are too extensive and too advanced in certain patches to be entirely accounted for as secondary to passive congestion, which would lead to more uniform induration.

Yours sincerely,

L. HEKTOEN.

I think Dr. Hektoen misunderstands Dr. Purdy's note when he assumes the existence of venous congestion for only six or eight weeks. Venous congestion must have existed for a much longer period, perhaps years, in consequence of the sclerosis and lessened elasticity of the arteries; since, although not so stated in his report, Dr. Hektoen found fibroid degeneration of the aorta.

This case is reported not because unusual, but because it represents a large and interesting class of cardiac diseases, which by some physicians are included in the generic term of "weak heart." Some writers designate them as "dilatation of the heart, or dilated heart." This was the nomenclature I adopted for years; but recently certain considerations have induced me to employ the name given by Fraentzel. It is open to the objection urged by Pepper that they might be confounded with cases of heart disease the

causation of which is not known. But in as much as hypertrophy and subsequent dilatation of the heart are incident to valvular lesions the use of the adjective "idiopathic" seems advisable to distinguish those cases unassociated with defects of the valves. Again, it might be urged that "idiopathic dilatation" or "idiopathic hypertrophy" is preferable to the term "enlargement," because of the vagueness of this latter. This objection is destroyed by the consideration that these two conditions of hypertrophy and dilatation are generally combined, one or the other simply predominating.

The chief interest of these cases to the clinician lies in the fact that their recognition usually occurs after symptoms of predominating dilatation have set in. It is a matter of clinical and pathological interest to determine the conditions underlying the cardiac changes. This enlargement of the heart is by far the most frequently met with in connection with chronic renal disease and chronic arterio-sclerosis, but by no means exclusively. It may be produced by congenital narrowing of the arterial system, by excessive and prolonged bodily exertion, as in soldiers, mountain climbers, etc. And very rarely, according to Fraentzel, by congenitally wide aortic system and genuine increase in the quantity of the blood, as in leucocythemia. Moreover, as is well known and was emphasized by Traube, chronic sclerosis of the arteries may exist without enlargement of the heart, and conversely hypertrophy and dilatation of the heart may be discovered without post-mortem evidence of the arterial changes which were suspected during life. Therefore, it is apparent that some antecedent condition underlies both the cardiac and vascular changes. This primary etiological factor is prolonged arterial tension, resulting in some cases from chronic renal disease, in others leading to and not produced by chronic vascular disease, but in Fraentzel's opinion resulting from *luxus consumption*, abuse of alcohol and tobacco, and from severe, protracted physical exertion. These conditions may exist alone or in combination. This abnormal peripheral resistance leads to hypertrophy of the heart walls as the first result; subsequently, it may be after years, when the cardiac muscle has become weakened through degeneration or otherwise, dilatation supervenes. This giving way of the walls may be produced by some sudden or excessive effort, or may even result from the persistence of peripheral resistance, and symptoms of dilatation develop slowly.

Post-mortem, the heart presents no evidence of valvular disease, only hypertrophy of the walls of both ventricles with dilatation of their cavities and flattening out of the papillary muscles. To the unaided eye the cardiac muscle may present no extensive degeneration or it may show softening and fading out of color, from fatty degeneration. These degenerative changes depend in extent or absence upon the condition of the coronary arteries and when fatty degeneration does exist, it is secondary to the condition of the coronary vessels which in the systemic arteries led to the enlargement of the heart.

Let us see now how these considerations apply to the case in hand. To the unaided eye the heart presented evidences only of great enlargement without degeneration or valve defects. The aorta appeared normal, certainly did not contain atheromatous patches. The only evidence of such change in the coronary arteries was thickening and a single calcareous patch situated about half an inch from the mouth of the main right coronary vessel. Both kidneys were larger than normal, the right being a little the smaller. Its capsule was striped off with great ease without bringing away any of the kidney substance, whereas the capsule of the left was adherent. The unaided eye discovered little or nothing to explain the cardiac enlargement.

The microscope shows fibroid changes in the aorta and renal arteries, as well as small coronary branches, which of itself was sufficient to have greatly augmented, if it did not produce the heightened blood pressure with the arterial system. Had the patient lived long enough, atheromatous changes would probably have been developed. As it was, the heart suffered in its nutrition, underwent fibroid degeneration in the manner explained by Huber, and gave out long before the condition of his other organs required that it should. The microscope completes the diagnosis and shows as wrong my assumption of *luxus consumption* as the primary cause of the arterial tension; unless, indeed, as argued by Fothergill, Traube and others, the circulation in the blood of the products of excessive feeding may have contributed to the development of the arterio-capillary fibrosis.

VENETIAN BUILDING.

NEW AND RAPID METHOD OF REPAIRING INTESTINAL INJURIES, AND EXHIBITION OF CARTER'S CLAMP.

By J. J. LARKIN, M. D.

The instrument I have the pleasure of showing you this evening has but a limited scope, and that includes intestinal wounds only.

My comparisons will be made only in this direction. Bullet wounds or stabs of the intestine are closed at the present time by the use of—

1. Sutures alone.
2. Decalcified bone plates, described and used so successfully by my esteemed friend and preceptor, Dr. Senn.
3. The metallic button so recently brought out and so cleverly used by our worthy contemporary, Dr. J. B. Murphy.
4. My clamp, which I take great pleasure in showing you this evening.

All will concede that the suture alone has the widest range of application, yet has serious drawbacks, to which I will refer later.

The introduction of bone plates is the result of serious thought and tireless investigation; but they have so limited a range of usefulness, and such marked defects that I question if they will ever become generally useful or very popular.

Murphy's button is one of the most unique and ingenious devices known to the intestinal surgeon. In my humble judgment it is a most admirable appliance and the simplest up to date. It, too, has its drawbacks and its defects; to be sure it has its function, as has any other instrument, and when made to do other than its original duties, it is somewhat disappointing.

My clamp has its function; it will close scientifically and securely a stab or bullet wound of the intestines in fifteen seconds.

The instrument I show you is made of brass, but may be made of any other metal or hard rubber; it consists of two semicircular jaws that act upon two hinges. When it is open and ready for use, its form is nearly circular; when closed and in position, the jaws come together and the several sharp needle-pointed teeth on either jaw fit into corresponding holes countersunk into the opposite side. The jaws are held together by means of a steel spike that is accurately notched to receive a sharp spring in the other side; this ratchet is for the purpose of locking the jaws at any point corresponding to the thickness of the gut operated on.

I will now proceed to place it upon a wounded intestine, thereby demonstrating its applicability. I hope to be able to show to any one that at one interview the *modus operandi* can be thoroughly comprehended.

My clamp requires practically no experience but a few seconds of time; no needles, no knife, no extra wound, makes no false passage.

In laparotomies for intestinal injuries, shock is an important factor in recovery. Its avoidance or its diminution lessens danger, lessens the percentage of mortality.

I make a plea for the simplicity of my instrument, for the simplicity of its application, for the confidence that simplicity will give to otherwise timid physicians, throughout the country, when called upon to treat injuries of the intestines.

PILES. THEIR CLASSIFICATION AND TREATMENT. A FEW GENERAL REMARKS.

By J. R. PENNINGTON, M. D., CHICAGO.

The medical mind has been, recently so largely occupied in considering such important subjects as cerebral, abdominal and pelvic surgery, that one scarcely dares to venture forth with an article upon such a comparatively trivial, though much neglected and deserving one as piles.

However, I am induced to bring this subject before you to-night because of this neglect, plus the fact that there seems to be in the minds of some only a vague and indefinite conception of this simple and distressing affection. There appears to be but little appreciation of the varieties of piles, their reflex disturbances, the various methods of treatment, and the results of an apathetic attitude toward patients afflicted with this malady.

This lack of appreciation, perhaps, is due in part to the fact that there has been a want of opportunity for special instruction in diseases of the rectum. And yet there is no class of diseases of more importance:

1. Because the rectum is one of the most fertile sources of reflex troubles.
2. Because they are productive of a vast amount of local suffering and misery.
3. Because of the great importance of the external sphincter, which, if incapacitated, is liable to be followed by incontinence of feces.

I am aware, that to some of us, these diseases seem so repulsive and unattractive, that we do not give to them that degree of attention and consideration which their importance demands. This apathetic attitude and indifference toward patients suffering with these affections, not only injures our reputation as physicians, but it has a most potent influence in directing them to the unprincipled quack, who, after exhausting their means, consigns them hopelessly to a miserable existence, or premature grave; and others, learning of their sad fate, refrain from being treated for a condition which they fear cannot be cured, and therefore must be endured.

Success in the treatment of this malady, as in all diseases, depends largely upon the physician's ability to make a diagnosis, and to appreciate the various methods of treatment required under different conditions. Who would think of treating all cases of diarrhea in precisely the same manner, or all cases of adenitis?

The various cases of each disease, being due to different causes and having different complications, naturally suggest different modes of treatment. The same rule necessarily holds good in the treatment of piles. "For instance," as Mr. Allingham says, "it is absolutely absurd to think that all cases of piles can be cured by physic, and it is equally absurd to hold that all piles require the knife to effect a cure." Therefore, in treating this malady, both medicine and surgery has its field of usefulness and application.

But prior to the intelligent employment of either, it is necessary to examine the patient carefully and make a diagnosis. The laity call most all affections of the rectum and anus "piles," and you can readily see how utterly useless it would be to treat a polypus, fistula, cancer or pruritus ani as a thrombotic pile.

Piles may be divided into external, internal and interno-external. External piles are of two kinds: 1. Tags of skin; 2. Varicose veins, neither of which are troublesome when in a quiescent state. Anything, however, which causes this tag to become inflamed; or, the vein thrombosed,—thus forming a thrombotic pile—will bring on an attack of external piles. In a patient thus afflicted, remove the cause, bathe the part thoroughly in cold or warm water, and apply some soothing lotion or ointment to the part. Should they not yield, the pain becoming more severe, and they begin to suppurate, it may be necessary to incise or remove them. This, however, is seldom necessary, as they rarely suppurate, and with laxatives, soothing applications, cleanliness and rest, are cured in a few days. A radical cure, however, in many

instances, will require an operation, which is simple and easy to perform.

Internal piles have been variously classified by different authors. In this paper we shall accept the division into venous and capillary.

Venous piles are, as a rule, bluish or reddish tumors, varying in size from that of a pea to an English walnut. They may or may not prolapse at stool, and in long standing cases, where the sphincter has become relaxed, protrude at any time; occasionally they bleed, and sometimes very copiously.

This variety, in its incipency, may be greatly relieved or even cured, by judicious medicinal treatment and the removal of the cause. But if the condition has become chronic, an operation is the only manner by which we can hope to effect a radical cure.

In the so-called capillary variety, there is no definite tumor, simply a vascular area, which is very slightly, if at all, elevated above the mucous membrane. It is the most dangerous form, because the mucous membrane covering it is very thin and porous, easily ruptured; and an alarming or perhaps serious or fatal hemorrhage may follow. They usually yield to the application of astringents or nitric acid. Should they not, more radical measures will be required.

An interno-external pile, commonly called the mixed variety, is one in which an internal pile merges into an external one, they being continuous, one with the other. Constipation aggravates this condition and it is relieved, temporarily, by laxatives, but to cure it requires an operation.

In selecting the operation, it is well to bear in mind that a complete and permanent destruction of the pile tumor, with as little loss of mucous membrane as the circumstances of the case will permit, and with a minimum amount of risk of bad consequences to the patient, is the object desired. These requirements can be more nearly fulfilled in the greater number of cases by the ligature and incision method, as performed by Mr. Allingham, than any other, which is, briefly, as follows: After a thorough stretching of the sphincter, patient having been anesthetized, preceded by aseptic and antiseptic precautions, and a sufficient preparation of the gut by laxatives, enemas, etc., the pile is drawn down and away from its attachment by a salmon's hook or vulsellum, and separated with scissors from its connection with the submucous and muscular tissues upon which it rests. The incision is made at the junction of the skin with the mucous membrane, and

is carried up the bowel so that the pile is left connected by mucous membrane and vessels only. A strong ligature is then tied on the mucous side of the pedicle, and not in the incision, as recommended by most authorities, and as high up and tightly as possible, the assistant pulling the pile well down and outward. The ligatured pile is then returned within the sphincter.

Mr. Allingham says: "That there is frequently contraction following the operation," and while at St. Mark's Hospital, making a special study of these diseases, I examined quite a number of patients in the wards and out-department, and found this to be true. To minimize this tendency to contraction, I conceived the idea of making the incision, not along the side of the pile at its base, but along the side and above the base. By this procedure the entire tumor, including a small portion only of the mucous surface, is radically removed. Care, however, must be taken not to leave a superfluous amount. We thus provide for the readjustment of healthy mucous tissues, and guard against contraction. Were the cautery as sure guard against hemorrhage as the ligature, I believe it would possess, applied to this pedicle, some advantages over the latter. In doing the operation, avoid injuring the sphincter or cutting the large blood vessels supplying the pile.

The use of the ligature by transfixion has received most careful consideration by Dr. Mathews, whose very large experience in this particular application has, perhaps, rendered him one of the first authorities upon the subject, and it is one of the best applications of the ligature in many cases of internal piles. By this method the pile cannot be removed so completely and with as little loss of mucous membrane as in the manner above described.

In the clamp and cautery operation, the pile is seized with a pair of forceps, clamp applied to its base, the distal end cut off, and the stump thoroughly cauterized with the platinum at a dull cherry-red heat. Mr. Henry Smith, of London, devised a serrated cautery, with which to remove the tumors, and claims that the laceration produced by the serrated edges acts as an additional safeguard against hemorrhage.

Prof. Gerster, in the Transactions of the American Surgical Association, 1893, says: "To avoid contraction with the clamp and cautery, it is important not to embrace in the clamp more than the uppermost third of the hemorrhoidal node." It seems to me that by this operation the diseased condition is not removed in toto, and a return of the piles may be anticipated in the course of time.

Whitehead's method of excision and suturing, which consists in dividing the mucous membrane around the bowel at the mucocutaneous junction, then separating it and the attached piles from the submucous tissue, for one or more inches up the bowel, then pulling down the mucous membrane and dividing it transversely and suturing it to the free margin of the skin below, might be indicated where there was an indubitable "pile area;" but this is seldom seen, and I do not believe that one is justifiable in subjecting a patient to such a major operation for the removal of one or two piles, and as long as we can get beautiful results with less serious and dangerous operations, I do not believe we should advise it, save in such cases as above mentioned.

I have observed sequelae, such as stricture, ulceration and incontinence of feces following this operation, or its modification, and I assure you that they are conditions hardly to be admired.

Many other methods, as the injection of carbolic acid, dilatation of the sphincter muscles, etc., have been proposed for the cure of internal piles, but after a fair trial by reputable physicians, they have been found to be either painful, dangerous or inefficient, and have been, therefore, almost entirely abandoned.

In conclusion I wish to state that continuous palliative treatment, especially in the young, when more radical measures are indicated, should not be practiced, but discouraged, and its possible consequences explained, at the same time advising the patient to undergo a radical operation and be permanently cured, as there is danger of his becoming a confirmed invalid, when by proper treatment a radical cure can be easily and safely effected, and the patient completely protected against the distressing condition which otherwise is liable to supervene.

COLUMBUS MEMORIAL BUILDING.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held at the Schiller Club, March, 19, 1894.

President McArthur in the chair.

The reading of the minutes of the preceding meeting was postponed.

The Committee on Membership reported favorably on the applications of Drs. J. P. Buck, 418 La Salle Avenue; F. Kreissl, 4599 Oakenwald Avenue; E. R. Ogden, 1800 Indiana Avenue; A. A. Wesley, 3102 State Street; A. E. Evans, Palmer House; S. Goldman, 4947 Ashland Avenue; J. H. Slayter, 406 E. Erie Street; W. F. Waugh, 3724 Ellis Avenue; Maurice Kraus, 36 Washington Street, and on motion the Secretary cast the ballot of the Society for their election.

The applications of Drs. O. T. Freer and George Manierre were read and referred to the Committee on Membership.

Dr. WELLER VAN HOOK read a paper entitled

SPINA BIFIDA TO BE TREATED AS A HERNIA

Illustrating his paper by drawings. See April RECORDER.

Dr. CHRISTIAN FENGER: I agree with most of what Dr. Van Hook has said. The open method is gaining ground; it has the advantage of possible permanent effect, but I am not so certain that the iodine injection method is to be altogether condemned. It is a question to me whether injection is not more conservative, as it preserves all nerve elements and thus has advantages

as to the future of the patient, as regards the trophic disturbances that so often follow, but the future will have to decide this.

I have here some microscopic slides from a case of spina bifida which presented some peculiarities. It was situated near the neck and was operated upon because it was growing. The child was four months old. There was no paralysis, but on account of increase in the size of the tumor I was called upon to operate. When the sac was opened, the tumor presented in the opening into the spinal canal, after the cerebral fluid had escaped. The tumor was three-fourths of an inch long and of a bluish white color, not the color of the spinal cord. On lifting the tumor away from the opening I thought I could see the spinal cord. On removing the tumor spasms occurred in the arms. I believed at the time that this tumor was a angioma originating either from the posterior surface of the spinal cord, that is, from the pia mater, or perhaps from the dura mater. I removed the tumor by ligation and extirpation, without, however opening the spinal canal further down, because I did not think it advisable to subject the child to further operation. The plastic operation was done for covering the defect and healing took place as usual. Cerebro-spinal fluids escaped for a week, and then stopped.

Examination of the tumor showed a fine connective tissue containing a great number of round cells and an ordinary number of normal vessels. I was and still am undetermined whether the mass consisted of a young connective tissue, or of glia tissue with nerve cells. Besides this I found a cavity lined with cuboid epithelial cells, the dilated spinal canal, the hernia being a combination of meningocele and myelo cystocele. There was no paralysis, no disturbance of nerve function. One year afterward the child commenced to walk standing up to a chair and I was unable to find any nervous disturbance.

If we find a nervo-vascular area on the posterior surface of such a tumor, it is a question whether we can disinfect it so well that it can be safely replaced, which should if possible always be done.

Dr. L. L. McARTHUR: I would like to put on record a case of similar nature. On December 25, Dr. Merriman brought to me a child only fourteen hours old with a lumbo-sacral spina bifida in which all the tissues were absent except the dura to the extent of about a trade dollar in size. The patient was brought because the dura had ruptured in the central portion of the canal and because partly the hope was that the child would die if operative interference was instituted.

The dura was dissected up and narrowed in size to conform with the spinal canal above the opening. In this sac the spinal cord was found to be subdivided into what appeared to be the cauda equina lying on the anterior surface of the spinal canal. The sac was dissected up and sutured in the middle line after trimming it to such an extent that it would correspond with the size of the canal above. The suture used corresponded to the Czerny-Lembert suture for the intestine, turning the external surface of the sac wall inward and making a double line of suture to get a good broad surface for plastic union and to make up for the defect of integument. A transverse incision was made two inches above the point at which the integument was lacking and a flap adherent at both ends laterally brought directly down over the sutured membranes. No lateral or transverse processes were found with which to make an osteo-plastic covering. Primary union occurred throughout the wound, except at the middle point of the lower angle from which for ten days cerebro-spinal fluid escaped; after that time there was no escape of fluid and the child has completely recovered, so far as the operation is concerned. The child was born with a double talipes varus and since the operation, has begun to develop hydrocephalus, for which I have partly blamed myself, possibly unjustly, in that I had allowed the parents to let the child lie with its head quite low and the lower portion of its body in what might be called the Trendelenberg position, in order that the cerebro-spinal fluid might not be under great pressure while the wound was healing. I would ask Dr. Van Hook how long the cerebro-spinal fluid escaped in the case he reports?

Dr. WELLER VAN HOOK: There was no escape of the fluid except at the time of operation; the meninges were sutured tightly and the rest of the tissues closed over them.

The tumor that Dr. Fenger alludes to is a matter of extreme interest. It recalls the glioma described by Hildebrand in one of his cases.

Dr. McArthur's case is also interesting, being similar to a number of published cases of the same kind followed by hydrocephalus. It seems to me that Dr. McArthur is in error in calling the covering of the sac the dura. It was thought by Virchow and Koch in their earlier pathological studies, that the dura was the meninx left; but it is now held by v. Recklinghausen and Hildebrand that the dura is very rarely left; either the pia or arachnoid being the covering structure.

Dr. A. BELCHAM KEYES read a paper on

EMPHYEMA

and exhibited three patients.

Dr. J. M. PATTON: The first part of the paper does not appear to me pertinent to the title as announced on the card and perhaps it is the part of the paper most open to discussion. In the treatment of empyema it is generally accepted that there is nothing to do but to drain the pleural cavity, and still some patients will get well after simple aspiration which is not a justifiable method at the present day. I had a child under treatment who made a perfect recovery from empyema by simple aspiration repeated nine or ten times. Under such circumstances the risk of permanent injury to the expansion of the lung is so great that we are not justified in taking it. The indications for the different methods of draining the chest cavity ought to be laid down more clearly. All the different types of empyema may be regarded as secondary troubles. As we begin to understand the primary conditions which lead to the development of empyema we can furnish more clearly the specific indications for operation. I have recently had a case of metapneumonic empyema under care in which perfect drainage was accomplished by siphonage as advocated by Dr. Bülow, of Hamburg.

The patient was a young lady eighteen years old, from whom two quarts of pus had been aspirated. As the cavity immediately refilled, drainage was established after the method of Bülow by siphoning, and the result was, after two months, the loss of less than one-half inch of expansion at the bottom of the chest with no loss of expansion at the level of the middle of the scapula. With this type of empyema this method is much better than draining through an open drainage tube, and much better than resection of the ribs, because by its use the very best results are obtained as regards the after expansion of the lung.

Dr. FITCH: Dr. Keyes has spoken of the spontaneous discharge of these abscesses through a tortuous sinus. During the first year of the epidemic of la grippe I attended a patient who had all the symptoms of grippe passing into pneumonia of the right side. Instead of pneumonia the patient developed symptoms of abscess on the right side; an operation was contemplated, when suddenly pus escaped through the bowels, and the patient made an uninterrupted convalescence, and is now in perfect health.

Dr. HOMER M. THOMAS: Dr. Keyes did not appear to differentiate between the conditions of empyema and those of subacute

inflammations of the pleura, where we do not get the typical products of empyema. It would hardly be justifiable, in my experience, to so promiscuously aspirate for all effusions in the chest, as the author appeared to indicate. My experience is that the conditions of acute and subacute pleurisy are very often self-limited and self-curative; reabsorption goes on and no operative procedure is required.

In regard to operative procedures in empyema per se, I am very much in accord with the suggestion of Dr. Patton as to the desirability of siphonage. I have seen very ill results, such as direct sepsis, from using a simple drainage tube, as suggested by the author of the paper. Such a method in view of our present knowledge on this subject is hardly indicated, and is open to many serious criticisms. As a general rule the empyemic condition can be relieved by the siphonage pressure which can be produced either by trocar, or by the use of some one of the surgical pumps. My experience with the pumps that are recommended for that purpose has been somewhat extensive and quite satisfactory. After the introduction of the sharp pointed needle beneath the pleura the protective shield can be put on over the end of the needle and the operator is then enabled to pass this shield very thoroughly and extensively around in the lung tissue, and thus facilitate the removal of any accumulation. If it does not reach it upon the first puncture it is not necessary to make a fresh opening, but by diverting the direction of the needle a very considerable area of lung may be explored with only one external opening.

Dr. G. E. KRIEGER: I have sometimes found aspiration in empyema very difficult, and have also noticed as Dr. Keyes has said, great pressure in irrigating the cavity retards healing. Two years ago I demonstrated in this society a trocar which I used in cases of empyema. The trocar is of the "T" shape with a rubber tube and a valve on either end, one tube going to a vessel filled with antiseptic fluid and the other leading downward to a pail. When this trocar is introduced into the cavity pus is discharged through the lower tube into the pail, while the valve in the upper rubber tube does not allow the current to go backward to the antiseptic fluid. With the next inspiration a quantity of antiseptic fluid is aspirated into the thorax while the other valve is closed. On expiration the aspirated antiseptic fluid together with the remains of the pus leaves the thorax and flows downward through the other tube, and this will continue as long as the valves are allowed to work. I have found it practical to wash out and aspirate at the same

time without using any other apparatus than the trocar. One is able to follow a certain aspiration from the cavity of the thorax, by shutting off the upper end of the tube so that with each expiration a certain amount of fluid will flow out and with inspiration nothing can get into the pleural cavity, and in this way the contents of the pleural cavity may be gradually diminished and healing favorably effected.

Dr. A. B. KEVES: In reply to Dr. Patton, simple aspiration of pus as a remedy in empyema depends on the etiology of the pus as pointed out in my paper; the differentiation between resorbable and unresorbable pus is often difficult.

The golden rule of surgery: Free, dependent, permanent drainage, holds good for pus in the light of our present knowledge, yet aspiration should be tried.

Dr. A. E. Halstead late interne in Cook County Hospital tried aspiration in three cases over an extended period of time, unsuccessfully and resection of the ribs was resorted to with good results.

Dr. F. H. Martin read a paper entitled

THE TREATMENT OF PELVIC ABSCESES BY LAPAROTOMY, WITH A REPORT
OF EIGHTY-TWO CASES.

Dr. J. H. ETHERIDGE: Dr. Martin has gone over the ground very thoroughly and completely. A very excellent way of emptying abscesses which seem not to be dependent upon tubal diseases is to incise in a line parallel to Poupart's ligament, to open and drain the abscess, treating it entirely extraperitoneally. I congratulate the author upon his elaborate paper.

Dr. CHRISTIAN FINGER: I think that we will all agree with Dr. Martin that the majority of pelvic suppurations originate in the tubes and that it finally may necessitate removal of the tubes in many cases; but many cases of salpingitis with peri-salpingitis come to an end without operating as do inflammations in other mucous membranes. When an abscess presents into the vagina, then I think it is safest to open through the vagina; and those patients recover after a convalescence of variable length. I do not agree with Dr. Martin that it is possible to remove all tubes and abscesses by abdominal section.

I believe that cases where an attempt at enucleation of the tubes will endanger the intestines must be treated not by a small opening and enucleation in the dark, but by a large opening, so that we can see what we are about, and abandon the attempt if too dangerous.

Martin, at the Congress at Copenhagen, called attention to the danger of enucleation in severe cases where the intestines were torn.

Leopold lost three out of five of these severe cases. In such cases enucleation should be abandoned and opening and drainage through the abdominal wound resorted to. I prefer the operation in two tempos as it is almost devoid of danger. Dr. Martin speaks of enucleation of tubes and abscesses. We all understand enucleation of tubes, but what is meant by enucleation of abscesses I cannot appreciate. I have never been able to enucleate an abscess. Enucleation of a local peritonitis is to me pathologically unknown.

Dr. KARL SANDBERG: I have listened to Dr. Martin's admirable paper, with great interest. There are still a great number of believers in pelvic cellulitis notwithstanding the fact that Bernitz and Goupill, of France, published their researches upon this subject forty years ago and proved by bedside observations and post-mortems, that those cases which formerly were supposed to be pelvic cellulitis or parametritis, originated in diseases of the tubes and ovaries.

I am also glad Dr. Martin insisted upon laparotomy as the routine treatment for these cases and that he has been able to remove the diseased organs in all the cases he has operated upon. My experience coincides with his. I have never failed to remove the suppurating tube and ovary irrespective of their size and distention with pus. I failed in one case where operation was attempted for old adhesions, in which the patient had been treated medically for a number of years, and had prolapsed, disfigured and adherent appendages with a retroverted and adherent uterus.

I cannot fully agree with Dr. Martin in saying that all these cases are abscesses. It is new to me to call every diseased tube, from the lumen of which a drop of pus can be squeezed an abscess. Still the author may be right in taking that view. Neither can I fully agree with him as to the advisability of extirpating every one of these tubes. I think I have seen a number of such cases recover without having the tube removed, probably by drainage through the uterus.

Dr. Fenger mentioned the case where we have a diseased organ with a smaller or larger pus cavity and a collection of pus around or below, an ovarian abscess or a pyosalpinx complicated with peritoneal abscess. In those cases it has always been my practice wherever possible, to make an incision from the vagina,

to drain the cavity; and afterward, if necessary, make laparotomy and remove the diseased organ through the abdominal incision.

I do not believe the author pointed out as clearly as might have been desired the usefulness of the exploring needle in the diagnosis of these cases. It is a very simple matter to introduce an exploring needle under the guidance of one finger through the vagina, puncture the mass, and find out whether there is a collection of pus or not. We may have a case where large masses can be felt in the pelvic cavity, where the patient has considerable fever, and still by exploring with the needle in any direction we may not be able to find any pus. It might be a question whether those cases should be treated by laparotomy or not. In using this method I have several times found a small pus cavity, the quantity of pus in which was not larger than would allow practically the whole contents to be withdrawn by the exploring syringe and the next day the patient would be free from fever and pain. In these cases it has been very difficult for me to persuade the patient to allow another operation such as laparotomy to be done. I have also seen several of these patients leave the hospital apparently well.

Dr. FRANKLIN H. MARTIN: It has taken me a great many years to learn that the often diagnosed chronic pelvic cellulitis is not chronic cellulitis, or the result of chronic cellulitis, but that it is almost invariably the result of intraperitoneal inflammation of the tubes and ovaries. Notwithstanding the very good authority of Dr. Fenger, I do not feel that a woman is absolutely free from danger as long as she has a pyosalpinx, whether there has been an attack of peritonitis or not. If that pyosalpinx empties periodically into the uterus the woman may go through life and have no further trouble, simply distention and tenderness, and the periodical discharge of pus from the vagina. There may, however, be closure of the uterine end of the tube, and the discharge may lead the other way into the peritoneal cavity, and if this occurs the patient will have peritonitis. Therefore, she is never safe as long as that pus tube exists. One discharge into the uterus of the contents of a pyosalpinx does not necessarily imply that it will always discharge in that direction. The peritoneal leakage produces peritonitis. Usually, the first time the peritonitis will limit the infection; a second leakage proves more serious, and the old adage that a woman dies about the third peritonitis is often true.

In regard to the pathological point that was unknown to Dr. Fenger, I do not wish to be misunderstood. I say I have

never had a tubal abscess that I could not enucleate. I know, however, a great many better men have. By enucleating a peritoneal abscess I do not mean that I take out the peritoneum that surrounds the abscess, but that I take out the ruptured tube that caused the abscess, and clean out the localized accumulation from the peritoneum which localized it.

I cannot agree that an exploring needle is a safe instrument in the treatment or diagnosis of obscure pus collections in the pelvis. At best an exploring needle operation is all in the dark. An exploratory incision is much safer, and in it lies the only safe means of relief.

Dr. W. T. Belfield and G. F. Lydston were appointed a committee to audit the Treasurer's accounts.

There were 105 members and visitors in attendance.

On motion the Society adjourned.

JUNIUS C. HOAG, Secretary.

The forty-second annual meeting was held at the Schiller Club, April 2, 1894.

President McArthur in the chair.

The minutes of the meetings of March 5, and 19 were read and approved.

The Secretary read his annual report, which on motion was accepted and placed on file.

The Treasurer read his annual report.

The Auditing Committee reported that the Treasurer's accounts were correct, and on motion the Treasurer's report was accepted and placed on file.

On behalf of the Committee on Library, Dr. Graham spoke of the improvements which have been made in the medical department of the Newberry Library, and especially referred to the munificent gift of Dr. Senn, Dr. Graham begged that the members of the Society would evince a proper interest in the library, as the Trustees aimed to make the medical department a very prominent feature of the library. As bearing on the same subject, Dr. Doering read the following preamble and resolutions:

WHEREAS, Dr. Nicholas Senn has given to the Newberry Library for the use and benefit of the medical profession of Chicago, a valuable collection of about ten thousand volumes on surgery and medicine, including many atlases, medical classics and sets of periodicals, to be known as the Senn collection, and

WHEREAS, the addition of "The Senn Collection" to the library will be of inestimable benefit to the physicians of Chicago, individually and collectively, on account of the increased opportunity for reading and research thereby afforded, and will also materially advance the interests of Chicago as a teaching center in medicine, therefore be it

Resolved, That the Chicago Medical Society, in appreciation of Dr. Senn's magnificent donation, hereby tenders him a hearty vote of thanks.

Resolved, That the Secretary be instructed to forward a copy of these resolutions to Dr. Senn.

E. J. DOERING,	} Committee.
S. C. STANTON,	
G. E. WIRE,	

On motion the resolutions were enthusiastically adopted, and the Secretary instructed to have them properly engrossed.

On behalf of the Committee on Publication, Dr Doering reported that the CHICAGO MEDICAL RECORDER, now in the fourth year of its publication, was self-sustaining, and that it afforded him much pleasure to make the following announcement :

The publication committee announces on behalf of the CHICAGO MEDICAL RECORDER that two prizes of \$100 each will be given for the best papers submitted before the Chicago Medical Society during the years 1894-5. The publication committee must be notified, through the editor, Dr Church, of each paper entering the contest, at the time it is read, and supplied with a copy of the same. It is intended to increase the amount and number of these prizes as the profits from the RECORDER may justify, and all members of the society are urged to continue their cordial support of the journal, and other things being equal, to give our advertisers the preference when prescribing. It is also suggested that whenever a worthy article for physician's use is presented by canvassers, agents and the like, the advice be given to advertise in the RECORDER. In this way much can be done toward building up a prize fund that will secure original and valuable work and add greatly to the importance of the society.

Signed,

E. J. DOERING,
JOHN A. ROBISON.

On motion, by Dr. Coleman, the thanks of the society were extended to the committee on publication for their arduous and successful labors.

President McArthur then made a brief address to the society, concluding his remarks with the nomination of Dr. Nicholas Senn for the Presidency of the Society. The nomination was seconded by Dr. E. Fletcher Ingals in enthusiastic terms, and upon motion, the Secretary cast the ballot of the society for Dr. Senn's election.

On motion, the Secretary also cast the ballot of the society for the reëlection of Drs. L. L. McArthur and H. N. Moyer to the respective offices of first and second Vice President.

On motion, the President cast the ballot of the society for the reëlection of Dr. J. C. Hoag as Secretary.

Upon further motion the Secretary cast the ballot of the society for officers and committeemen as follows:

For Treasurer, Dr. A. R. Reynolds. For Necrologist, Dr. C. D. Wescott.

To fill vacancy in committee on membership, Dr. J. H. Stowell. To fill vacancy in committee on judiciary, Dr. Wm. E. Clarke. To fill vacancy in committee on library, Dr. T. M. Hardie. To fill vacancy in committee on publication, Dr. Archibald Church.

On motion the following appropriations from the treasury were ordered as honoraria, viz.:

For Secretary, \$200. For Treasurer, \$100. For Editor, \$200.

Dr. John B. Hamilton offered the following resolution:

Resolved, That the Chicago Medical Society hereby approves of and recommends the passage of the bill to establish a department of public health, and to create the office of secretary of the public health department, according to the recommendation of the American Medical Association and the American Public Health Association.

On motion Dr. Hamilton's resolution was adopted.

The applications of Drs. Joseph Krost, Marie Olsen, J. L. Bergeron, H. R. Wittwer, F. T. Hartmann, C. R. Pugh, J. C. Stamm, E. Luehr and A. H. Roler were read and referred to the committee on membership.

On motion the secretary was ordered to issue delegates' certificates to the American Medical Association.

There were ninety members and visitors in attendance.

On motion the secretary adjourned.

JUNIUS C. HOAG,
Secy.

News Items.

Dr. J. L. HILMANTLE has removed to 205 North State St.

Dr. L. L. GREGORY has removed to 514 Evanston Avenue.

Dr. J. S. PEREKHAN has moved his office and residence to 2406 Prairie Avenue.

THE ILLINOIS STATE MEDICAL SOCIETY will meet at Decatur, May 15, 16 and 17.

THE COLORADO STATE MEDICAL SOCIETY will meet at Denver June 19, 20 and 21.

Dr. G. FRANK LYDSTON announces the removal of his office to 1208 Campaign Building.

Dr. JAMES H. STOWELL has removed his office to the Champlain Building, Suite 1010.

Dr. L. A. KIERULAFF has been appointed on the house staff of the Post Graduate Hospital.

TO RENT: Office hours in the Venetian Building. Apply to Dr. R. H. Babcock, suite 911.

Dr. M. C. JENNINGS has moved his office from 74th Street and South Chicago Avenue, to 189-55th Street.

THE OBSTETRICAL AND GYNCOLOGICAL SOCIETY OF BERLIN will hold its fiftieth Jubilee on May 8, 9 and 10.

Dr. JAMES A. LYDSTON has removed his office from McVicker's Theater Buildidg to Suite 804 Champlain Building.

Dr. G. FRANK LYDSTON is giving a course of lectures on Regional Surgery, at Masonic Hospital, Mondays at 8 P. M.

Dr. H. D. PETERSON, late of the house staff of St. Luke's Hospital, this city, has opened an office at 1617 Indiana Avenue.

Dr. E. J. DOERING has moved his office to 2458 Indiana Avenue, and has taken up his residence at the Hotel Metropole.

THE ARKANSAS STATE BOARD OF HEALTH has authority to revoke the license of any physician who is a habitual drunkard.

AMERICAN MEDICAL STUDENTS for 1893 numbered 18,910, of whom 16,759 were regular, 1,410 homeopathic and 741 eclectic.

DR. L. HARRISON METTLER has moved his residence to 4544 Lake Avenue. Hours: until 10 A. M., at 3 P. M.; 5 to 7:30 P. M.

A CHAIR OF PUBLIC HEALTH, with an endowment of five thousand pounds, has been established by the University of Edinburgh.

Dr. CHARLES EDOUARD BROWN-SEQUARD, the eminent physician, author and savant, died in Paris, April 2, at the age of seventy-six.

Dr. EMMA J. WARREN has moved to 417 La Salle Ave. Hours until 8 A. M.; 9 A. M., to 12.30 P. M.; 2 to 5 P. M. and after 6 P. M.

Dr. J. S. PEREKHAM has moved his office and residence from 67 Twenty-third Street, to 2406 Prairie Avenue. Telephone South 903.

Dr. DENSLOW LEWIS has moved his office to 613 Tacoma Building with hours from 3 to 5 on Mondays, Wednesdays and Fridays.

Dr. T. J. WATKINS has moved his office from 1355 Wabash Avenue to 93 Eighteenth Street, Morton Flats. Hours, 11 to 1. Telephone South 202.

THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA will meet in Philadelphia on May 15, 16, 17 and 18, instead of in Gettysburg, as originally announced.

THE COLORADO STATE MEDICAL SOCIETY will hold its Twenty-fourth Annual Convention in Denver, June 19, 20 and 21. The annual banquet will be held on June 21.

"UNCONDITIONAL SURRENDER" is the comment of the *Medical News* on the report of the Committee on Revision of the Code of Ethics of the American Medical Association.

THE AMERICAN CONGRESS OF PHYSICIANS AND SURGEONS will meet in Washington, D. C., May 29, 30, 31, and June 1. The various associations making the official sections of the organization have provided most elaborate and valuable programmes.

WANTED: Position in Chicago as an assistant to a physician making a specialty of diseases of woman, by a recent graduate of Rush, who speaks German and can give excellent references as to ability, character, etc. Address, Doctor, care of the RECORDER.

THE EIGHTH INTERNATIONAL OPHTHALMOLOGICAL CONGRESS will be held at Edinburgh August 7, 8, 9 and 10. Dr. Argyll Robertson will preside, and Dr. George A. Berry is the General Secretary. The proceedings will include a discussion on "Intra-Ocular Therapeutics."

THE ILLINOIS EASTERN HOSPITAL FOR THE INSANE, at Kankakee, Ill., would respectfully ask that all who read this and who have copies of illustrated magazines for which they have no use will donate the same to the Institution and send them boxed by freight, the charges on which the Institution will pay.

NEW YORK CITY, through its health department is attempting to control tuberculosis, and to physicians a circular of information has been issued looking to the management of this great scourge of modern life. They propose to disinfect the quarters occupied by tubercular patients, as for infectious diseases, and it is hoped they may meet with the hearty coöperation of the profession.

Dr. J. B. MURPHY has been appointed Honorary President for America of the surgical section of the International Medical Congress. The other appointments in this section were v. Bergmann, of Berlin, for Germany; Kocher, of Berne, for Switzerland; Sir William Stokes, of Dublin, for Ireland; Sir William MacCormac, of London, for England; Macewen, of Glasgow, for Scotland, and Mikulicz, of Vienna, for Austria.

THE AMERICAN MEDICAL ASSOCIATION will be provided with a special train to make the journey to San Francisco. This train will leave Chicago by way of the Santa Fé at 5 P. M., May 28. A stop will be made at Colorado Springs to visit Manitou and the Garden of the Gods, and at Denver a reception will be tendered the visitors by the Colorado Medical Society. The trip over the mountains will be by the Santa Fé and Rio Grande Railways during daylight, San Francisco being reached on the morning of June 3. The return trip will be by the Northern Pacific, through the Yellowstone Park, finally reaching Chicago over the Milwaukee & St. Paul Road.

THE MEDICAL DEPARTMENT OF THE NEWBERRY LIBRARY has been moved to the first floor in the west end of the building. This room has been fitted up with handsome new oak shelving purposely for the medical department. The books are arranged in the same order as before, the regular collection being in the east side of the house. A tier of ten cases has been left on the west side of the room for the Senn collection which, according to the terms of the agreement, is to be kept together. The current periodicals are arranged on shelves for ready consultation, and it is intended to put a number of reference books on open shelves for the use at the tables. The entire collection is in process of cataloguing so as to render it accessible to all.

THE CHICAGO MEDICAL RECORDER

JUNE, 1894.

Original Articles.

OPERATIVE TREATMENT OF MYOFIBROMA UTERI.

By N. SENN, M. D., Ph. D., LL. D., CHICAGO,

PROFESSOR OF PRACTICE OF SURGERY AND CLINICAL SURGERY IN RUSH MEDICAL COLLEGE; PROFESSOR OF SURGERY, CHICAGO POLICLINIC; ATTENDING SURGEON, PRESBYTERIAN HOSPITAL
SURGEON-IN-CHIEF, ST. JOSEPH'S HOSPITAL.

It is the province of this paper to discuss the operative treatment of myofibroma of the uterus. I take it for granted that I am expected to describe the safest and most efficient methods of dealing with such tumors with a special view of obtaining permanent relief for the patient. The time allotted for the reading of a paper on such an occasion is necessarily too limited to enable me even to enumerate what has been done in this department of surgery during the last twenty years. Almost every surgeon of experience has devised some modification of accepted operations so that the whole subject of the surgical treatment of nonmalignant tumors of the uterus remains in an imperfect and unsettled state, open for improvements in the future by additional research and clinical experience. Instead of wearying you by a description of operations which have found their way into our text-books, it is my intention to give you a brief account of the operative procedures which I have adopted and which I now follow in the cases selected for radical measures. The technique of the operation must necessarily vary according to the location, size and number of the tumors and the presence or absence of complications. The most important classification is in reference to the route to be selected for the op-

Read in the surgical section of the Illinois State Medical Society, May 16, 1894.

eration into: 1. Vaginal; 2. Sacral; 3. Abdominal. The surgical treatment of large and multiple myofibroma through the abdominal route embraces: 1. Salpingo-oöphorectomy; 2. Enucleation; 3. Laparo-myomectomy; 4. Laparo-hysterotomy; 5. Laparo-hysterectomy. I shall endeavor to describe as briefly as possible these various operative interventions as practiced by myself in the Presbyterian and St. Joseph's hospitals.

A careful selection of cases for the different routes and methods of operation distinguishes the scientific and successful surgeon from the routine operator. It will be my aim to point out the character and location of uterine myofibroma adapted for the different radical operations.

PREPARATIONS FOR OPERATION.

It is unnecessary for me to insist that no operation upon the uterus or its appendages by any of the routes mentioned should be performed without adequate preparations having been made with a view to securing an aseptic condition for the field of operation. Unless the indications for immediate operative interference are urgent, the preparatory treatment should be commenced at least three days before the operation. A daily tepid bath, mild saline laxatives, a light diet and rest continued for three days to a week will do much toward preparing the patient properly for the operation.

It has been my invariable custom to avoid the menstrual period for at least a week. In spite of weighty opinions to the contrary, I am satisfied that the liability to infection is greater at this time than during the interval. The greater vascularity of the parts to be operated upon during menstruation is another reason for selecting a more favorable time for the operation. Thorough disinfection of the vagina and external genitals must be secured in order to insure asepsis, irrespective of the route selected for the removal of the tumor. Shaving, liberal use of hot water and potash soap, and lastly a thorough scrubbing with alcohol and sublimate solution ($\frac{1}{1000}$) are the best known means to accomplish this object. The vagina should be tamponned with iodoform gauze and the part for the intended external incision covered with a compress wrung out of the same sublimate solution, the moisture and heat to be retained by an impermeable covering over the compress, and the whole held in place by a bandage. I make it a rule to repeat the disinfection immediately before the operation is commenced. The hands are disinfected in the usual way, and the

instruments by boiling for at least fifteen minutes in a one per cent solution of carbonate of soda. I have gradually abandoned the use of sea sponges and now use almost exclusively dry gauze compresses and gauze sponges, which are sterilized for each operation. Nothing but sterilized water is used during the operation. In reference to the selection of the anesthetic each case is subjected to a careful examination. In kidney, heart and pulmonary complications chloroform is administered. After the final disinfection, if a laparotomy is to be performed, the patient is dressed in a gown with endless sleeves and an oval opening in front corresponding to the region below the umbilicus, if a vaginal operation is contemplated a pair of drawers extending over the feet are used. These garments have been found exceedingly useful in the prevention of a fruitful source of accidental infection. Silk is used almost exclusively in tying vessels inside of the abdominal cavity and in vaginal hysterectomy, while catgut is used for buried sutures in closing the external incision, aided by silkworm gut sutures.

VAGINAL REMOVAL OF MYOFIBROMA.

This operation is applicable in all cases in which the tumor is attached to the cervix or its canal and in accessible intra uterine tumors not exceeding the size of a foetal head.

In cervical and pedunculated intra uterine myo fibroma I have entirely abandoned the use of the ecraseur and galvano caustic wire. I regard the use of the cold and hot wire as unreliable and dangerous. The operations by this method have often been followed by recurrence owing to incomplete removal of the tumor. The fear of dangerous hemorrhage in these cases is unfounded, provided the operation is performed properly and the iodoform gauze tampon is relied upon as a hemostatic. Removal by torsion is an unreliable and unscientific operation. In cervical and pedunculated intrauterine myofibroma I always resort to sub-mucous enucleation. A circular incision is made extending through the thickened mucous membrane sufficiently far from the attachment of the tumor so that the cuff of mucous membrane after the enucleation will cover the bed of the tumor. With a Kocher's director, blunt pointed scissors and the finger the mucous membrane is separated close up to the attachment of the tumor, when the latter is grasped with a vulsellum forceps and twisted around its axis until it is detached. This method of operating minimizes the hemorrhage, insures complete removal of the tumor and leaves enough mucous membrane to cover the defect.

After another thorough disinfection the cervix, or uterine cavity is tamponned with iodoform gauze, which is allowed to remain for three or four days. If the tumor approaches the size of a fetal head, its delivery can be accomplished most speedily and with the greatest degree of safety, with a pair of short obstetric forceps. If the cervix is not sufficiently dilated, rapid dilatation by the usual methods, aided, if necessary, by lateral incisions, must be resorted to before an attempt is made to remove the tumor. Large intrauterine myofibromata with attachment to the fundus are to be delivered by the use of forceps before enucleation is attempted. In several such cases I succeeded in producing by careful traction a partial inversion of the uterus which greatly facilitated the enucleation. In sessile submucous intrauterine myofibroma, operable through the vaginal route, the cervix is thoroughly dilated, the tumor grasped with a large vulsellum forceps, dragged downward as far as possible, when the mantle of mucous membrane and uterine tissue covering it is incised in a direction parallel to the long axis of the uterus and enucleation effected through this incision.

Whenever practicable the tumor should be removed in toto, and not by morcellement as the latter procedure is attended by greater danger of inflicting unintentional injury upon the surrounding tissues, as well as the risk of incomplete removal. A large sessile submucous tumor of the fundus of the uterus can be removed more safely by laparo-hysterotomy than by a vaginal operation. Large sloughing intrauterine myofibroma, not readily accessible from the vagina, should be removed by laparo-hysterectomy or laparo-hysterotomy in two stages as advised by Nussbaum.

SACRAL METHOD.

Kraske's operation for the removal of high carcinoma of the rectum, has recently been adopted by Hochenegg, Czerny, and others, for the removal of the carcinomatous uterus. I believe with Mueller, that the uterus can be rendered sufficiently accessible from this direction by removal of the coccyx without sacrificing a part of the sacrum or making a temporary resection of this bone; procedures which greatly complicate the operation and augment the danger to life from shock and remote complications. I can readily conceive that in the case of interstitial tumors of the lower segment of the uterus involving its posterior wall, the sacral operation would prove easier and safer than either the vaginal operation or laparo-hysterotomy. If the peritoneal cavity is opened it is closed by suturing after enucleation has been com-

pleted, and the wound closed throughout by buried sutures. If the uterine cavity is opened, an iodoform gauze tampon should be employed in such a way as to pack the bed of the tumor and drain through the uterus when the operation wound is closed by buried and superficial sutures.

ABDOMINAL SECTION.

Operations upon the uterus or its appendages for myo-fibroma of the uterus are indicated in cases in which the tumor gives rise to symptoms and is not amenable to successful treatment by less hazardous means. In many instances the method to be pursued must be determined upon after the abdomen has been opened, the location and size of the tumor determined and the existence and character of complications ascertained by a careful ocular and manual examination. On this account it is necessary for the operator to make careful preparations for the operation to meet successfully unexpected emergencies.

SALPINGO-OÖPHORECTOMY.

The removal of the uterine appendages for myofibroma has become an established operation. The curative effect of the operation is more marked in the myomatous, soft than the fibrous or hard variety. It is indicated in young females suffering from inoperable bleeding fibroids. It is contraindicated if the size of the tumor gives rise to mechanical disturbances incompatible with the functions of any of the important abdominal organs. It is of especial value in multiple myofibroma when the mass fills the cavity of the pelvis and is incorporated in a mass of adhesions which would render enucleation or hysterectomy impossible or at least dangerous to life. I have performed this operation a great many times and have never been disappointed in its results. In well selected cases it must be regarded as a radical or curative operation because the tumor gradually diminishes in size and the peritoneal symptoms if present likewise undergo progressive improvement. I have repeatedly seen a tumor the size of a child's head reduced to the size of an orange within from four to six months after the operation. If the tumor has occasioned extensive plastic pelvic peritonitis the operation often becomes one surrounded by many difficulties. The ovaries and tubes are frequently found completely buried in firm adhesions, rendering their isolation and removal a difficult task. At other times one or both ovaries cannot be found. The great secret of success in the enucleation of such appendages is to find the exact place to start from. Usually the

best guides are the cornua of the uterus and the broad ligaments. Tearing blindly among the adhesions in search for the ovaries or tubes without any anatomical landmark is dangerous practice and often terminates in disaster and abandonment of the operation. It is in cases of this kind that the Trendelenburg position proves of the greatest value. Another source of danger threatening the result of the operation is incomplete removal of the ovaries. The smallest fragment of living and attached ovarian tissue will interfere with the ultimate intent of the operation, the bringing about of the anticipated climax. The surgeon must therefore exercise every possible care to effect complete removal of both ovaries. The tubes should be tied close to the uterus and removed. Fine braided silk should be used as ligature material and the tube cut at least a third an inch below the point of tying to prevent slipping of the ligature. I always cover the stump with a thin film of iodoform. If the adhesions are numerous and firm, troublesome oözing may require the use of a Milkulicz drain. According to my observations diminution in the size of the tumor sets in as soon as the artificially produced menopause is initiated.

SALPINGO OÖPHORECTOMY AND MYOMECTOMY.

In multiple myofibroma of the uterus I have often combined advantageously removal of the appendages with enucleation. By this combined method I have been able to remove several tumors the size of a cocoanut, thus doing away at once with a health disturbing obstacle, and by the removal of the ovaries and tubes have prevented further growth of numerous smaller subserous and interstitial tumors.

The simultaneous performance of these two operations is indicated in the radical treatment of multiple myofibroma in young females if some of the larger tumors are favorably situated for enucleation. I regard a combination of these procedures under such circumstances preferable to hysterectomy, being less dangerous to life and resulting in less mutilation.

ENUCLEATION.

Enucleation without salpingo oöphorectomy is applicable in single myofibroma, or in cases in which the number of tumors is limited and adapted for this procedure. Tumors within the legitimate range of this operation must be either subperitoneal or interstitial. Tumors between the cornua and in the anterior wall of the uterus are most amenable to this method of treatment. The uterus must be brought well up into the external incision, and if it can be

done without losing too much time or inflicting additional injuries, temporary elastic constriction should be applied below the field of operation. The visceral incision should be made between and parallel to the large blood vessels. Enucleation is made with the finger or the use of blunt instruments. After the removal of the tumor the size of the wound is diminished by one or more rows of buried catgut sutures. The margins of the incision are then turned inward and their serous surfaces approximated by sero-muscular sutures of silk. For the purpose of guarding still more efficiently against hemorrhage a continued suture of fine catgut is applied over the silk sutures. If small tumors, not adapted for enucleation, can be felt, the operation should be followed by a salpingo oöphorectomy. In several cases of enucleation of a comparatively large tumor from the anterior wall of the uterus in which I did not wish to trust to suturing as a hemostatic agent, I sutured the margins of the visceral wound to the parietal peritoneum in the lower angle of the wound, folding the visceral peritoneum so as to shorten the wound, and packed the bed of the tumor with iodoform gauze, which was brought out at the lower angle of the abdominal incision. All of the patients operated upon by this method recovered without any untoward symptoms.

LAPARO-MYOMECTOMY.

Laparo-myomectomy and laparo-myomotomy are terms which signify the removal of a myofibroma, through an abdominal incision without opening the uterine cavity. This operation is, therefore, anatomically limited to the removal of subperitoneal and interstitial tumors. Enucleation and excision of tumors from the body of the uterus must be regarded in the light of radical as well as conservative operations; and should, therefore, be substituted for the more mutilating operation of hysterectomy, as far as possible, in young women. There can be no doubt that these and similar conservative radical measures will gradually limit hysterectomy to its legitimate sphere. The removal of a myofibroma, without sacrificing the uterus, bears surgically the same relations as resection of a joint to an amputation of a limb. It constitutes the ideal treatment in properly selected cases. Excision of myofibroma is indicated particularly when the tumor is located between the cornua of the uterus or in its anterior wall. If two or more tumors are in such close proximity as to permit their removal in the same manner, myomectomy should take the place of hysterectomy. I have recently removed a tumor weighing twenty-four pounds by

this method, and I can do no better in detailing the technique of the operation than by reporting this case in brief.

REMOVAL OF A MYOFIBRÔMA WEIGHING TWENTY-FOUR POUNDS BY LAPARO-MYOMECTOMY; FIXATION OF VISCERAL WOUND IN EXTERNAL INCISION. RECOVERY. Mrs. B., Irish, age twenty-nine, entered St. Joseph's Hospital, March 24, 1894. She always enjoyed good health until five years ago, when, after the birth of twins, she dis-

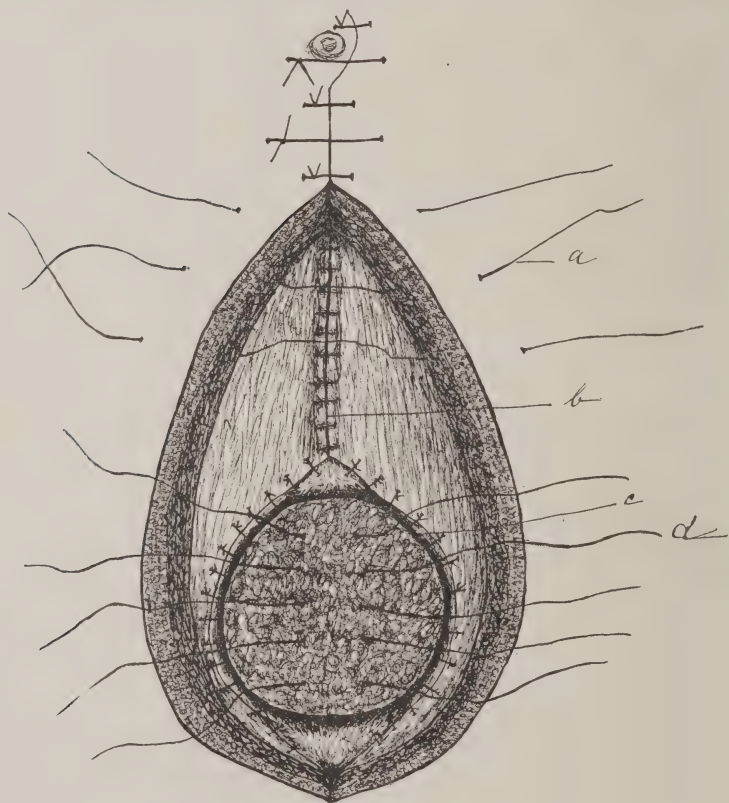


FIG. 1.

LAPARO-MYOMECTOMY.

A, Deep Sutures; B, Buried Peritoneal Sutures; C, Visceral Peritoneum Sutured to Parietal Peritoneum; D, First Row of Buried Uterine Sutures.

covered an abdominal tumor about the size of a large orange. The tumor did not increase much in size until her next pregnancy. Sixteen months ago she again gave birth to a child. A tumor the size of a child's head was discovered after delivery. Since that time it increased very rapidly in size. She nursed the child

until she was admitted into the hospital. Menstruation somewhat profuse. On examination a hard, smooth immovable tumor was found, which reached to the costal arch on both sides. Cervix barely within reach of the index finger. Diagnosis, myofibroma of the uterus.

Operation April 1. Incision from near the ensiform cartilage to within two inches of the pubes. At a point corresponding to the umbilicus the tumor was so firmly attached to the parietal peritoneum over a space the size of the palm of the hand that the visceral peritoneum corresponding to this area, had to be detached from the tumor. Vessels as large as a lead pencil from the deep epigastric supplied the tumor at this point, requiring numerous ligatures. Over the upper and posterior aspect of the tumor the great omentum performed a similar office. The omentum was tied in sections with fine silk before cutting it close to the tumor. The tumor was now delivered through the external incision, and the wound closed as far as possible.

The base of the tumor was then constricted with a solid rubber cord. The tumor was attached to the uterus between the cornua. It was amputated by two transverse elliptical incisions. The surfaces of the wound were brought in contact by four rows of sutures, the last of fine silk.

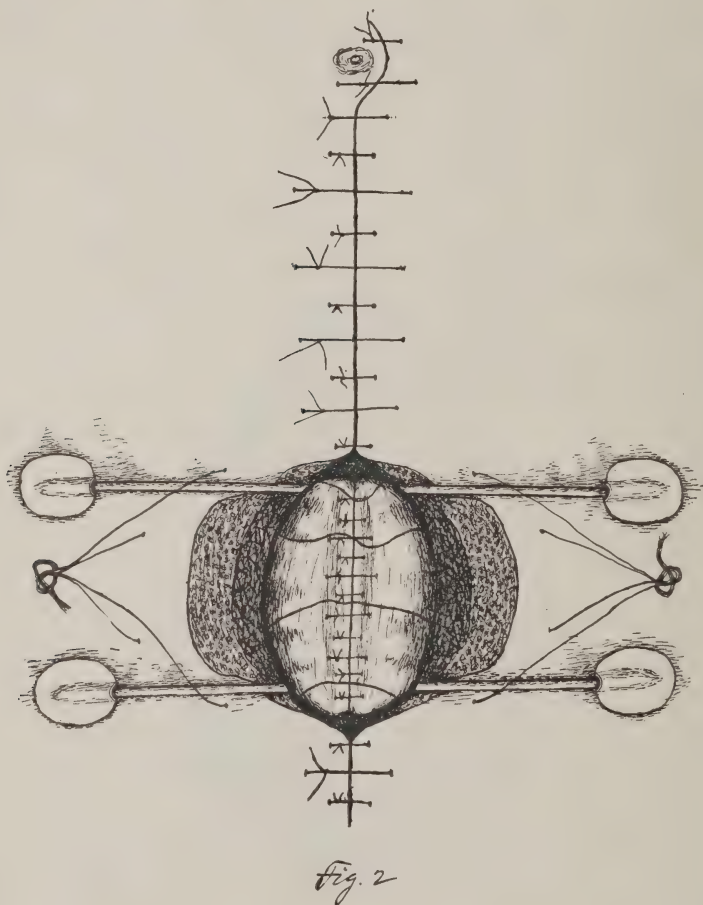
After the removal of the constrictor the fundus of the uterus was slightly twisted upon its axis, so that the line of suturing of the visceral wound corresponded with the direction of the abdominal incision when the parietal peritoneum at the lower angle of the wound was sewed to the visceral peritoneum near the line of suturing, and the uterus anchored in this position with two long steel pins, each of which transfixed one of its angles. Slight oozing occurred after removal of the constrictor.

The remaining part of the wound about two inches in length was packed with iodoform gauze after which the usual dressing was applied. On the second day the external dressing was changed as it had become saturated with bloody serum. On the third day the packing was removed and the wound closed over the uterus by two secondary sutures. The patient recovered without an unpleasant symptom, and nearly the entire wound healed by primary intention. There is no reason why this patient should not become pregnant again and give birth to a child without the occurrence of complications.

The case is of special interest to gynecologists and obstetricians from the fact that it proves that a myofibroma of large size

involving the upper part of the uterus, is not incompatible with a normal pregnancy and delivery.

I can readily conceive that a similar operation could be done with equal success if the tumor were located in the anterior wall of the uterus.



LAPARO-MYOMECTOMY.

Uterus held in lower angle of wound by two long steel pins.

LAPARO-HYSTEROTOMY.

Laparo-hysterotomy is a term used to designate the removal of a myofibroma through the abdominal route with opening of the uterine cavity and is used as a technical synonym for Cæsarian section. It is indicated when the tumor is single, large, and projects into the uterine cavity, in other words, it should be resorted to in the

operative treatment of submucous or interstitial myofibroma not adapted for vaginal enucleation. I will illustrate the indications for and the technique of the operation, by a case reported to this society a year ago, "Laparo-hysterotomy, Its Indications and Technique," *American Journal Medical Sciences*, September, 1893.

The patient was a married woman, thirty-eight years of age, who had borne three children, the youngest being eight years of age. She dates her illness back seven years, but was not aware of its nature until recently. For the last six years menstruation has been profuse, and at times painful. She was admitted into St. Joseph's Hospital, Nov. 23, 1892, and the operation was performed a week later. Patient was somewhat anemic, otherwise her health was not impaired. On examination a hard, smooth tumor was found in the lower part of the abdomen, reaching upward as far as the umbilicus. Vaginal examination revealed a condition which very much resembled the first stage of labor.

The os uteri was found high up, widely dilated and occupied by a smooth, hard tumor, which might have been very easily mistaken for a fetal head. Bimanual palpation satisfied me that the tumor was partly intrauterine and single. Owing to the high position of the uterus and size of the tumor, I regarded a vaginal operation as uncertain and dangerous. I determined, if possible, to save the uterus and appendages, and to remove the tumor by laparo-hysterotomy. On opening the abdomen it was found that the tumor occupied the lower left and posterior part of the uterus. I incised the uterus in the median line from a point a little below the cornua to within two inches of the cervix. I had to cut through nearly the entire thickness of the muscular wall before the tumor was reached. The bleeding was moderate and was readily controlled by the use of hemostatic forceps. As soon as the tumor was reached the work of enucleation commenced. At a number of points I had to cut strong bands of connective tissue, which seemed to extend from the uterus into the substance of the tumor. When the lower part of the tumor was reached it was discovered that on the side toward the uterine cavity, at a point a little above the cervix, the enucleated part was covered by a patch of mucous membrane. Considerable hemorrhage attended and followed the enucleation, which was arrested by packing the bed of the tumor with a long strip of iodoform gauze. A uterine sound was now introduced from below, and the mucous membrane of the uterine cavity incised

upon it the whole length of the tumor in a downward direction, and the end of the gauze tampon brought down into the vagina.

The uterine incision was closed by bringing the margins of the wound in accurate apposition by a row of catgut sutures, about six to the inch, embracing everything except the peritoneum. Over this row of interrupted sutures a continued fine catgut suture brought the muscular tissue between the interrupted sutures in accurate contact. Sero-muscular sutures of silk were now used to invert the margins of the wound which brought in apposition two wide strips of peritoneum, and over these was again applied a continued fine catgut suture. This method of closing the wound arrested the hemorrhage from the cut surfaces completely. After careful cleansing of the uterus the organ was replaced into the abdominal cavity and the lower part of the omentum brought in con-

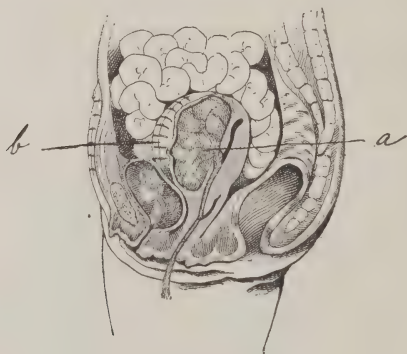


FIG. 3.

A, Bed of tumor packed with iodoform gauze; B, Sero-muscular sutures.

tact with its posterior surface. The abdominal wall was closed in the usual manner by four tiers of sutures. The tumor weighed four pounds. Not a single unfavorable symptom followed the operation. On the fifth day the tampon was removed, the vagina irrigated with a weak solution of corrosive sublimate and loosely packed with iodoform gauze, which was allowed to remain for four days. The patient left the hospital at the end of four weeks, and has remained in excellent health since. Menstruation has been normal in frequency and quantity since the operation. It appears to me that in such cases laparo-hysterotomy is the ideal operation and should take the place of oöphorectomy, hysterectomy, and vaginal removal by morcellement. In the nonpregnant uterus the tissues are much firmer and less vascular than when the organ is in the gravid state, and the incision down to the tumor has to be made

almost exclusively with the knife. The knife should be laid aside as soon as the tumor is reached, when enucleation is effected with the fingers, curved, blunt-pointed scissors, or a Kocher's director. The hemorrhage from the bed of the tumor can be controlled best by the aseptic tampon, which must extend into the vagina, serving at the same time the useful purpose of an efficient capillary drain. If the uterus is replaced into the abdominal cavity the visceral wound must be sutured with great care to prevent hemorrhage from the incised surfaces. Round needles must take the place of the ordinary surgical needles for the same reason.

LAPARO-HYSTERECTOMY.

The removal of the uterus for myofibroma is a confession on part of the surgeon that the disease has advanced beyond the reach of a more conservative operation. I am firmly convinced that at the present time this operation is too frequently performed for non-malignant disease. Many of our gynecologists appear to regard the uterus as an unimportant organ, ready to sacrifice it under the slightest pretext. When we read in the current medical literature week after week of hysterectomies done for myofibroma the size of a walnut, for simple hypertrophy, endometritis, flexion, prolapse, and removal of normal uteri for vague neurotic affections it seems to me it is time to protest against such thoughtless, reckless surgery. When the history of operative gynecology will be written in the course of another decade the prevailing tendency to mutilating surgery will constitute a black page and a sad reflection upon the alleged progress of this department of surgery during the present time. The sacrifice of an organ for an otherwise curable disease and the removal of a healthy organ for obscure nervous affections are operations unworthy of the scientific conscientious surgeon and the seeker of truth. The partial or complete removal of the uterus, like the amputation of a limb, must be regarded by the surgeon as a serious matter and should be resorted to only when the indications are clear and more conservative measures are inadequate. Hysterectomy for myofibroma is of all operations discussed in this paper the gravest and most mutilating, it must therefore be reserved for cases in which the local conditions are a source of suffering or danger to life and out of reach of more conservative procedures.

These remarks apply with special force to the treatment of patients suffering from this affection during the childbearing period. As stated before the indications for this operation can often only be

ascertained after the abdomen has been opened and the conditions revealed preclude the possibility of successful treatment by any of the operative procedures which have been described above. Hysterectomy is justifiable if the tumor is very large and involves the body of the uterus, or if the organ is affected by a number of large tumors not amendable to enucleation, also if for any reasons the appendages cannot be removed, the uterus being the seat of numerous small tumors. The great number of operative procedures that have been described for the removal of the uterus and are still being devised is the best possible proof that the present technique of abdominal hysterectomy has not reached perfection.

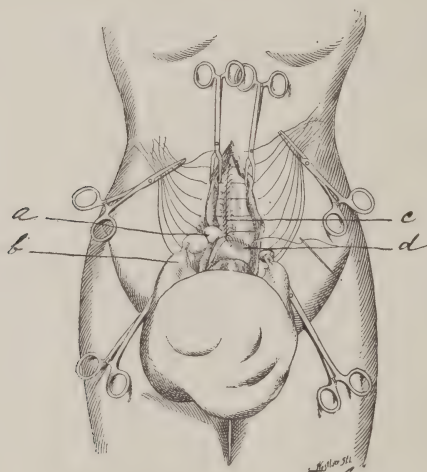


FIG. 4.

EXTRA-PERITONEAL HYSTERECTOMY.

A, Ligature broad ligament ; B, Forceps compressing ; C, Buried peritoneal sutures ; D, Peritoneal cuff sutured to parietal peritoneum.

The most important questions that are being discussed in connection with this subject at the present time are: Should the entire uterus be removed? Is the extra or intraperitoneal treatment of the stump the safest? In answer to the first question I am of the opinion that in operations upon the uterus for nonmalignant disease the operative procedure should be limited to the removal of the diseased part of the organ, hence in the great majority of cases the hysterectomy will be a partial one. I can see no indication for the removal of the lower segment of the uterus when the disease is limited to the upper part of the organ, provided the stump can be disposed of in a safe and satisfactory manner. Conservation should

be the rule here as well as elsewhere. Complete hysterectomy becomes an unavoidable necessity if the entire organ is involved and in cases in which, owing to the location of the tumor or the existence of complications, the remaining part of the uterus cannot be treated in a safe and satisfactory manner. I have always regarded the extra peritoneal treatment of the stump as the ideal one as it secures more efficient protection against the two greatest immediate risks of the operation, hemorrhage and sepsis. I will give you a short description of the methods which I have recently devised in



FIG. 5.

performing hysterectomy for myofibroma. Hegar's and Schroeder's methods in my hands have resulted in a mortality of twenty-five per cent. During the last two years I have performed eighteen hysterectomies for myofibroma by a method which I have termed "extra peritoneal" with the result that not only every patient recovered but in no single instance was the operation followed by any untoward symptoms. I designate the operations as "extra peritoneal hysterectomy" because the external incision is closed before the uterus is removed and part of the peritoneal investment is preserved for a more successful treatment of the stump. With few exceptions the ovaries and tubes were removed at the same time. The broad ligament is tied and near the uterus clamped with a Spencer Wells forceps and cut between. Usually two ligatures and two forceps are necessary. The intestines above and behind the uterus are protected by a large compress. A circular incision through the peritoneum is then made on a level with the

section of the broad ligament and the peritoneum is then detached in the form of a cuff to a point where it is desired to apply the elastic constrictor.

At this stage of the operation the parts are well represented by Fig. 5. A solid cord of rubber is now tied firmly around the uterus, deprived of its peritoneal covering at the floor of the peritoneal cuff.

The uterus is now amputated and the uterine or cervical canal and surface of stump cauterized with the flat point of Paquelin cautery, or excised. The fascia of the recti muscles is brought together by another row of buried catgut sutures, the deep sutures

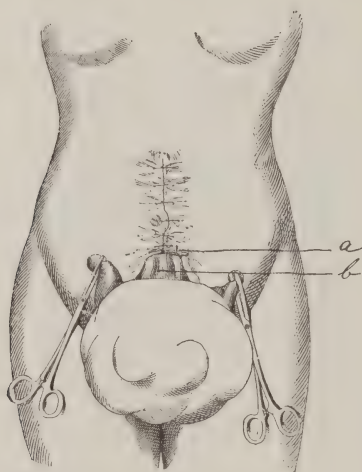


FIG. 6.

A, Rubber Ligature; B, Uterus deprived of its peritoneal investment.

tied, the stump dusted with iodoform gauze and the wound dressed.

The great advantages of this operation are: 1, absence of tension; 2, absolute control of hemorrhage; 3, minimum risk of infection; 4, diminished risk of injuring the ureter.

So far I have observed only one case of ventral hernia following as a remote consequence of the operation. One great disadvantage of the operation has been the inevitable sloughing of the stump outside of the elastic ligature. This drawback to this operation has, in common with all others which aim at controlling hemorrhage by constriction of the stump *en masse*. It requires usually from three to four weeks for the elastic ligatures to cut its way through, when the wound heals rapidly by granulation

leaving a funnel shaped depression at the point corresponding with the location of the peritoneal cuff. I have recently modified the operation in so far that I have dispensed with the elastic constrictor, disposing of the stump in such a manner as to place the wound in a condition compatible with healing by primary intention.

EXTRA PERITONEAL LAPARO-HYSTERECTOMY WITHOUT THE USE OF
PERMANENT ELASTIC CONSTRICTION.

The operation is performed in the same manner as described above, only that the elastic constrictor is dispensed with, after the employment of other permanent hemostatic measures. After the

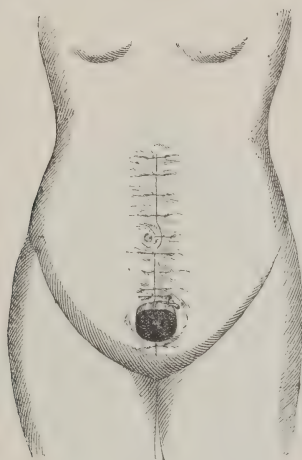


FIG. 7.

Operation Completed.

uterus has been amputated the uterine arteries are tied, the uterine cavity disinfected by cauterization, or a strip of mucous membrane is excised when the amputation surface, made in the form of a transverse, shallow depression, is approximated by three or more rows of buried sutures of catgut for the purpose of controlling parenchymatous hemorrhage. Two or more secondary sutures are inserted, and the wound corresponding to the extent of the peritoneal cuff packed with iodoform gauze. On the third or fourth day this gauze is removed and the secondary sutures tied, thus approximating the abdominal incision accurately over the uterine stump. I have performed this operation only once, but the result was so satisfactory that I will briefly report the case.

EXTRA-PERITONEAL LAPARO-HYSTERECTOMY WITHOUT PERMANENT ELASTIC CONSTRICTION; PRIMARY HEALING OF EXTERNAL WOUND.—Miss M., age thirty-eight, American, entered St. Joseph's Hospital April 3, 1894. Profuse menorrhagia for ten years, with two intervals, during which menstruation was nearly normal. Noticed an enlargement in the lower part of the abdomen for the first time two years ago. One year later a firm mass the size of a hen's egg was discharged spontaneously per vaginam. For years the patient has suffered from indigestion and constipation. Patient is very

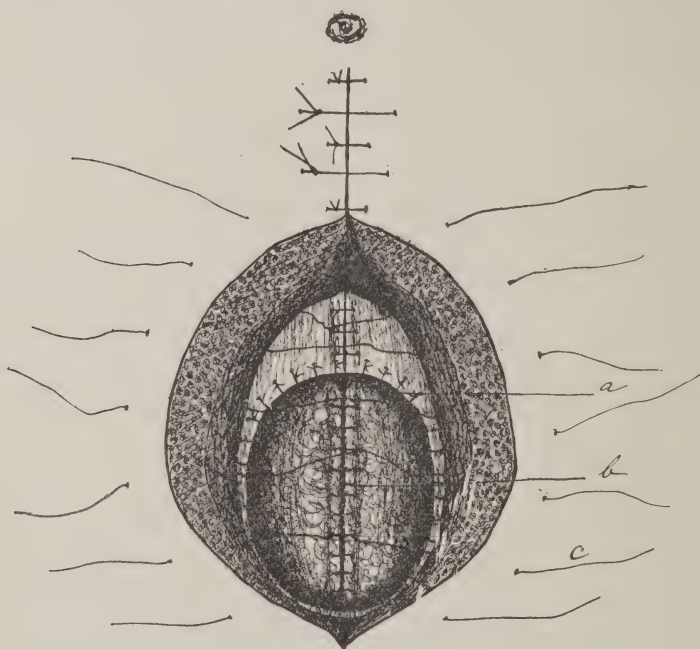


FIG. 8.

LAPARO-HYSTERECTOMY WITHOUT THE USE OF PERMANENT ELASTIC CONSTRICTION.

A, Peritoneal cuff sutured to parietal peritoneum; B, Muscular part of uterus sutured in form of cone by buried sutures; C, Secondary sutures.

anæmic, otherwise general health not much impaired. The uterus is movable and corresponds in size to a six months' pregnancy. Cervix high up, canal not dilated.

Operation, April 6. Medium incision from two inches above umbilicus to near pubes. Removal of appendages with uterus. No adhesions. Peritoneal cuff about three inches in length. Amputation made in such a way that the surface of the stump pre-

sented a shallow trough. Mucous membrane of the uterus excised to the extent of half an inch, canal closed by a row of catgut sutures, ligation of uterine arteries. The cut surfaces were approximated by three rows of buried catgut sutures. On removing the elastic constrictor only slight oozing. Packed the surface with iodoform gauze over which the secondary sutures were loosely tied in a loop, securing thus uniform compression of the extra peritoneal part of the stump. Dressing changed on the second day. On the third day the gauze packing was removed and the secondary sutures tied. Primary healing of wound. Patient was able to leave her bed at the end of four weeks. Great improvement of her general health during this time. Examination of the specimen revealed two large interstitial tumors, one attached to the fundus the other projecting from the posterior wall of the uterus. My experience in connection with this case has convinced me of the superiority of resorting to this method of controlling hemorrhage over constriction of the uterus by elastic ligature, clamp or *ecraseur*. By excluding the peritoneal cavity by suturing the peritoneal cuff to the parietal peritoneum, the surface of the stump is at all times accessible to treatment and efficient compression can be made with the iodoform gauze tampon to arrest parenchymatous, oozing after ligation of the uterine arteries and suturing of the cut surface by several tiers of buried sutures. I am hopeful that more accurate suturing will render the gauze tampon superfluous in which event the external incision can be closed throughout over the stump, thus securing the same favorable conditions for primary healing of the external incision as by the intraperitoneal method, with the advantages of securing more efficient hemostasis and a minimum risk of infection.

CHOICE OF RADICAL OPERATIONS FOR THE CURE OF UTERINE FIBROIDS.

BY HENRY BYFORD, M. D., CHICAGO.

Having discussed the indications for both palliative and operative treatment of uterine fibroids in a short paper read before the society at a recent meeting in Chicago, I shall confine my remarks to-day to tumors which are to be removed bodily, or whose disappearance will be the direct result of the operation.

We will adhere to the old classification into 1, polypoid and submucous; 2, the intramural and 3, the subserous and intraligamentous.

First, the polypoid and submucous. Those which are near the mucus membrane and do not form a projection into the uterine cavity are classified among the intramural.

The polypoid fibroid should always be removed per vaginam when smaller than a child's head, and the same may be said of the submucous when not complicated by other tumors of good size belonging to the other classes. If the cervix be small some preparation will be required. Rapid dilation with or without incisions is apt to prove inadequate except in very small growths, and hence complicating lacerations may occur. Gradual dilatation produced by mechanical means, such as tents, tampons, etc., is often inefficient, and predisposes to sepsis. I have therefore found it more desirable to use some remedy to cause uterine contraction, with the double object of forcing submucous tumor farther into the uterine cavity, so as to give it more of the characteristics of a polypus and of pressing it down into the cervix so as to dilate the os from the uterine side as is done in normal labor. I have found that the cervix even though closed and rigid will thus dilate to a diameter of two inches or more at the external os and still greater at the internal os and thus give plenty of working room. Two or three grains of ergotin or from half to a drachm of fluid extract of ergot given four times daily for a few days will usually cause painful uterine contractions and gradual dilatation. A very common error of physicians is to regard these painful contractions as a contraindication to ergot, and to stop it and give opiates. Instead of such being the case, however, it is usually a proof of efficiency of the drug and should lead us to make vaginal examination in hopes of finding a fibroid presenting at the relaxing os.

Read before the Illinois State Medical Society, May 16, 1894.

When the cervix is as large or nearly as large as we wish it we put the patient under the influence of an anesthetic and remove the whole tumor at once or by cutting it to pieces, morcellement. When the process of dilatation extends over several days the capsule is apt to undergo necrosis. This of course calls for prompt action.

I have on two occasions started efficient uterine contractions by means of intrauterine electrolysis. The contractions continued until the os was dilated and I could safely remove the fibroid mass that projected from the uterine walls by morcellement.

Cervical fibroids should have their capsules incised and be enucleated either with or without morcellement as may be necessary. The bed should, if possible, be sewed up, as it bleeds freely, and afterward cicatrizes irregularly. Hemorrhage after enucleation of submucous fibroids of the uterine body is seldom alarming as the uterus contracts or can be made to contract after being emptied.

Submucous tumors larger than a child's head usually require an abdominal section. In such cases the uterus may be incised, the tumor enucleated, the bed sewed up, and the uterine cavity which as a rule is opened, drained with gauze. Even when the cavity of the uterus is not opened, it is better to open it and drain through the uterus, as taught by Senn. When such cannot be done the uterus may be amputated below the growth or totally removed.

Intramural fibroids are usually multiple. When small they can sometimes be radically cured by ergot, electricity, oöphorectomy or vaginal ligatures of the uterus, as recommended by F. H. Martin, etc. When they press injuriously upon surrounding tissues or occlude the cervix, and cannot be enucleated, the uterus may be removed per vaginam with or without morcellement, provided the whole mass is not larger than a child's head. When much larger than this it must be removed by abdominal section and supravaginal amputation or total extirpation. If only one or two large ones are found, Senn's method of enucleation and drainage through the uterine canal can be employed.

Single subserous and pedunculated growths can be removed without taking the uterus. A wedge-shaped piece may be excised from the base of the pedicle, or if the pedicle be large and short, the tumor may be enucleated and the bed sewed. Multiple subserous and intraligamentous tumors require supravaginal amputation or total extirpation.

In removing uterine fibroids without removing the whole organ it is not necessary to risk the patient's life in an attempt to remove all of the small kernals. When the larger ones are removed palliative treatment may be expected to prevent the others from developing.

I have avoided discussing the technique of the operative methods recommended as that will be described by another member of the society.

PALLIATIVE OPERATIONS IN THE TREATMENT OF FIBROID TUMORS OF THE UTERUS.

By DR. FERNAND HENROTIN., CHICAGO.

The present seems a fitting time to review the field of the surgery of uterine fibroids, and the arguments for or against the so-called palliative operations. It is not my purpose to rekindle the fiery discussions anent the therapeutic treatment of these growths or the "let alone" policy, or to disturb in the slightest degree the equanimity of our enthusiastic electrical friends.

Let us suppose ourselves confronted with the question of surgical treatment of a uterine fibroid which has bravely resisted all assaults of the above mentioned methods. We are still burning with the holy desire to be conservative, and though forced unwillingly to attack with surgical weapons, we make our first onslaught by way of the vagina.

The first procedure of the conservative surgeon is curettage of the endometrium, a measure much in vogue for the amelioration of symptoms, but open to the following objections:

It is far from being devoid of danger. The virulence of the discharge from the cavity of some fibroid uteri is too well recognized by experienced men to require more than the mere mention of the fact, to warn us of the care to be taken in this apparently trifling operation.

Its effect is only transitory, repetition at short intervals is as a rule necessary, and each repetition is attended by danger. When used to control hemorrhage it may beget sepsis by opening up avenues of infection and without accomplishing the object desired. The manipulations necessary to its thorough performance may rupture or disturb unsuspected pus accumulations surrounding the uterus, and the mere mechanical irritation may stimulate the fibroid itself to more active growth.

The same objections apply, though in a lesser degree, to dilatation of the cervix and intra-uterine scarification.

Complete enucleation or morcellement by way of the vagina is not palliative, but a radical measure, and is therefore without the scope of this portion of the discussion.

There remains two other procedures by way of the vagina which have lately been suggested and practiced; they contemplate control of the symptoms and arrest of the growth. One is the ligation of the uterine arteries, the other the ligation of the base of the broad ligaments, including of course the uterine arteries, with possibly the ligation of one ovarian artery. The first of these methods was suggested and outlined by an American, Walter B. Dorsett, in a paper read before the St. Louis Medical Society in May, 1890, but more definitely described and afterward practiced by S. Gottschalk, of Berlin, who read a paper upon this subject before the International College of Gynecologists and Obstetricians, at Brussels, in September, 1892. He reported two cases of multiple myoma in which he performed this operation with the best results.

Franklin H. Martin stands sponser to the second procedure. He claims that his method differs from the method of Gottschalk in three essential features.

1. That it includes in all cases the whole base of the broad ligament in order (a) to include not only the main channel of the uterine artery, but all collateral branches (b) to include the nerves as well as the articles of nutrition (c) to diminish nerve reflexes.

2. That it includes in desperate cases not only the base of the broad ligament with the uterine artery and branches, but when practicable includes the ovarian artery on one side.

3. That it accomplishes this result if possible without opening the peritoneal cavity.

Both of these palliative operations on fibroids are of too recent inception, and have been too little practiced to warrant any conclusion as to their merit. It is certain that in a large number of fibroid tumors, the anastomosis is so thorough, and the ramification of the vessels so extensive, that it would seem as if such measures would fail of their purpose. Whether the ligation of the broad ligament, including the uterine artery and the nerves, as proposed by Martin, will be followed by better results than the ligation of the uterine artery alone, remains to be seen. Transitory benefits after any operation are so often reported by patients that more time is needed before judgment can be passed upon the

permanency of the results of the operations. While the ligation per vaginam of the main trunk of the uterine artery is, as a rule, comparatively easy, the inclusion of a large portion of the base of the broad ligaments must, in certain cases of large, irregular fibroids, present great difficulty. The course of the ureters in some of these cases is so very uncertain that it is liable to be endangered. In other fibroids the broad ligaments are so elongated and attenuated by their attachments to the tumor above that a ligature would include very little besides the trunk of the uterine artery and a portion of the lower uterine segment.

We have now employed curettement and have ligated the uterine arteries as well as the base of the broad ligaments per vaginam, and though these measures were followed by amelioration of the symptoms for a few months, the patient is again suffering from menorrhagia, and examination discloses an increase in the size of the tumor. We are now obliged, therefore, to approach the disease more closely, and to consider the operation still of the palliative variety which involve abdominal section.

First come the method of ligation without removal of any portion of the tumor, uterus or adnexa. Repeatedly operators finding themselves balked in their attempts to remove the tumors because of adhesions, or other complications, have applied ligatures which included diverse structures of varied functional activity, with the intention of stopping growth, lessening hemorrhage, or both. Some have applied ligatures to the Fallopian tubes, others again have ligated the ovarian arteries with or without the tubes; others have gone still further and ligated the uterine arteries. Another class of operators has ligated large portions of the broad ligaments without regard to the structures included. F. Byron Robinson reports some cases in which he ligated the ovarian arteries, the Fallopian tubes, and the uterine artery on each side, the latter in two places "for about two-thirds of the distance from the tubes to the internal os." He says he has since performed this operation three times, and claims good results. He also states that "in the ligation of the two arteries, many nerves, including the automatic menstrual ganglia, will necessarily be destroyed, and immediate cessation of menstruation will result."

Simple ligation of the Fallopian tubes is unscientific, does not always stop ovulation or menstruation, and can have little effect upon the growth of the tumor.

The various suggested methods of ligation of the ovarian or uterine arteries are objectionable because they frequently fail

of shutting off the blood supply; because the vessels are often difficult to locate in complicated cases; and because it is not proven that these ligations even when carried to the extent proposed by Dr. Robinson, always produce cessation of menstruation.

Ligation of the broad ligaments without regard to the structures involved is a haphazard method, and is also open to objections outlined in the preceding paragraph.

All ligations without section are objectionable on account of the irritation to the nerve supply produced by the constriction of the ligature itself.

We now come to the last and most important of the palliative operations for the relief or cure of fibroids; namely the total ablation of the uterine appendages. The paternity of this operation is rather difficult to establish. Lawson Tait says, he and Hegar simultaneously devised the idea of removing the uterine appendages for fibroids in 1872. He reports two cases, one in August, 1872 the other in May, 1873. Pozzi states that Trenholme first performed this operation in January, 1876; and that a month later Hegar performed it with the same object. Hegar, however, says that he operated first in August, 1876.

As this method has now been so long in use and as the details of its performance are the same in fibroid tumors as in ablation for other diseased conditions, we will not detail the technique.

Lawson Tait, the most consistent and determined apostle of this method, reports two hundred and seventy-two cases with twelve deaths, a mortality of 4.41 per cent. His last series included in this report gives a mortality of only 2.03 per cent. In giving these statistics he distinctly states that where he has found pyosalpinx coexisted with myoma, he has kept these complicated cases out of his record, as he considers the pyosalpinx the more serious disease. In 474 recorded cases of removal of the appendages for inflammatory conditions, he acknowledges deaths to the extent of two and a half per cent.

Hegar, according to Pozzi, had six deaths in fifty-five cases, a mortality of about eleven per cent. Hart and Barbon have collected exclusive of Tait's series, thirty-seven cases with a mortality of 5.4 per cent.

It is allowed by all authorities and may be taken for granted that in 90 per cent of the removals of the uterine appendages for fibroids the operation is followed by diminution of the tumor and by more or less cessation of symptoms. If the operation has been properly performed the menopause is usually established. There

are certainly cases in which there is considerably difficulty in the performance of this operation. Sometimes the broad ligament, especially the portion attached to the ovary is so short that it forms an inseparable obstacle to the success of the operation as the ligatures slip, and as it is impossible to form a pedicle. Hegar in one such case terminated the operation by hysterectomy. In other cases the fibroid is small and large pus tubes accompany it, and a more perfect removal of the diseased tubes is accomplished by ablation of both uterus and tubes.

The results of castration are not always satisfactory. Tait has had to remove a uterus for a fibroid which had not been cured or improved by previous castration performed by himself. He also mentions a case in which hemorrhage having been arrested for a considerable time by the operation, resumed its progress and caused death. In another case on the sixth day after removal of the appendages, the cervix began to dilate and the uterus to make violent efforts to expel the tumor, whereupon the abdomen was reopened and hysterectomy performed, but the patient died. The literature of this subject supplies many such examples.

Castration is contraindicated according to Pozzi, in case of very large tumors on account of the risk of edema and mortification; in small tumors, with compression symptoms; in fibro-cystic tumors on account of their rapid growth and the relative benignancy of hysterectomy; and in telangiectatic tumors on account of the danger of thrombosis. Thornton is the only operator who has reported success from castration for a fibro-cystic tumor.

Incomplete removal of the tubes and ovaries frequently fails to bring about the menopause, which is one of the chief objects of the operation, and in a very reasonable proportion of cases, complete removal is impossible on account of the intricate adhesions of the organs to the irregular nodules of the fibroid mass. Bantock states that "in the majority of large tumors, the ovaries cannot be reached at all, or only on one side."

Having now particularized the various operations which have been employed, and to which the term palliative might be truly employed, and having stated the claims made by their respective adherents, let us now summarize the objections to palliative operations in general.

They do not entirely remove the disease. The cases in which total disappearance of the tumor has followed removal of the appendages are so few, that they may be ranked as exceptions. Not only do they prove unsuccessful in removing the tumor, but

often they fail to stop its growth, and although they frequently ameliorate the symptoms, they seldom permanently arrest them. Even though the patient seems well for several years, there are numerous cases wherein the symptoms have recurred with all their former intensity.

Failure to remove the growth leaves fertile soil for future degenerative changes. No operator, however experienced, can be sure from the symptoms, or even the appearance of a fibroid tumor that it does not contain the elements of malignancy.

Removal of the appendages is the only formidable competitor of total ablation. What are the relative dangers of these two operations? I stated at the opening of this paper that this seemed a fitting time for the discussion of this subject. The reason for this statement was the magnificent results obtained from total ablation with hysterectomy by modern operators, such as Krug, Baldy, Polk, Baer, Howard-Kelly, Eastman, Byford, Senn and others.

Baer, for example, in his last large series of cases, reports a mortality of only 3 per cent, and Howard Kelly has only two deaths in fifty-six hysterectomies for fibroid, a mortality of $3\frac{1}{2}$ per cent, and the others have equally good results.

When we consider that hysterectomy is so frequently an operation of last resort, the insignificant difference in mortality between it and castration is more than counterbalanced by the certainty of the cure.

In the consideration of this subject so far, I have purposely compared the palliative with the most radical methods. I have said little about enucleation, and yet enucleation represents the most perfect type of cure when it completely removes the disease. By this, I mean extirpation of the tumor and no more. To remove the most prominent fibroid, leaving nodules, and at the same time removing the appendages in order to prevent further development of the disease, is in my opinion decidedly inferior to hysterectomy. Laparo-hysterectomy for large simple fibroids as described and practiced by Senn is an ideal operation.

The field for palliative operations is limited to three classes of cases. The conditions under which they may be practiced can be characterized as follows—

1. Unwillingness of the patient to submit to radical measures.

This is a matter of everyday experience. We may in selected cases benefit the patient by carefully performed curettage; or may by incision or scarification or dilation assist the expulsion of sub-mucous fibroids situated in the lower segment of the

uterus; or we may ligate the uterine arteries or broad ligaments through the vagina. When abdominal section has been decided on, however, the surgeon should insist on being left free to proceed according to his judgment.

2. Inexperience of the operator. Diagnosis is not always easy. A man may encounter a fibroid in his first laparotomy. Unless he is certain of his ground he would much better for the patient be content with a palliative rather than with a radical operation. With time and experience the abdominal surgeon becomes more radical and at the same time more successful. The published mortality is the mortality of experienced men; that of the inexperienced remains unpublished.

3. Impossibility or grave danger of the radical operation. The condition of the patient may demand immediate surgical intervention, and yet may forbid serious or prolonged operation. Tait says that the best operators in the world have encountered myomas they could not remove.

With an incision of fair length, with the Trendelenburg position as demonstrated by Krug and with the improved operative procedures of Baer, Baldy or Polk, the cases calling for palliative operations are becoming less and less numerous, and among skillful surgeons the radical operation is rapidly assuming its proper place as the method of choice in fibroid tumors of the uterus.

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REINFECTION VS. RECRUDESCENCE IN RECURRENT SCARLATINA.

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Authors quite generally agree in the statement that recurrent scarlet fever is a phenomenon rarely met with. Willan¹ had never seen a second attack in an experience of two thousand cases. On the other hand Freijawsky² in three hundred cases found eighteen who had had a former attack, with intervals varying from one and a half to seven years. Dr. Frank,³ of Germany, cites the case of a boy of thirteen who between the years 1880 and 1887 had four different attacks of typical scarlet fever with decreasing severity. Woldberg⁴ reports a case repeating itself three days after deflorescence. It is claimed by some authors that a person who does not become immune after one attack never does gain immunity, but is liable to the disease as often as exposed. Epidemic sore throat during a prevalence of scarlet fever is regarded by some as a mild infection of scarlatina. It is related of Dr. Geo. B. Wood that he could never attend a case of scarlet fever without having a slight angina. Many others doubtless can verify the same in their own personal experience, thus exhibiting slight recurrent effects.

Dr. J. M. Kennedy,⁵ of New York, reports three interesting cases, showing family predisposition. A child two years of age came under his care with a well-marked case of scarlet fever, in a family but a few years from Edinburgh, Scotland. Two older children had had the disease in the old country. Two years after his first case in the family Dr. Kennedy was called to one of these elder children who had a well-developed scarlatina anginosa, and in a few days the other child contracted the disease. This led the doctor to doubt the correctness of the diagnosis made by the Edinburgh physician in their former illness. The prompt recurrence of scarlatina in the little boy he had treated two years before for the same disease removed all doubts.

These secondary attacks were all more severe in character than the primary invasion, a fact contrary to the usual course of recurrent infections. Another interesting point is the fact that the older children had not lost their immunity at the time the younger brother had the disease two years before, though they were fully exposed at the time.

The following case which came under my own observation I desire to place on record together with some inferences which to my mind point to reinfection rather than to recrudescence in recurrent scarlatina and by analogy to all other infectious exanthemata. While conclusions based upon a single case are to be deprecated on general principles, the rarity of recurrent scarlatina and some of the circumstances attendant on this particular case seem to justify the innovation.

In the middle of October, 1888, I attended a gentleman of thirty-five years of age living in an apartment building suffering from a severe attack of scarlatina anginosa. The flat below was occupied by a druggist's family consisting of his wife, a nursing babe eleven months old and a domestic. The apartments had separate entrances and no connecting passageways.

About three weeks after the convalescence of the gentleman in the upper flat, the domestic went down to the kitchen of the druggist, and while chatting with his servant lifted and held his child in her arms.

On November 16, the child developed unmistakable scarlatina anginosa. After the usual course the temperature became normal, the membranous patches disappeared from the throat and the rash had entirely faded.

Five or six days from the development of the disease in the child the mother, who continued to nurse her babe at the breast, was also stricken with the disease, which ran a moderately severe course. On the 28th the child which apparently had entirely recovered manifested all the symptoms of its first attack, resembling every phase of the malady so recently passed through with slightly decreased severity. The recurrence took place five days after defervescence and was seen by Dr. H. P. Merriman in consultation during the second attack.

Two positions are taken to account for secondary attacks where the intermission is brief. First that relapses are due to the persistent activity of the influences that excited the first attack, a recrudescence of the original contagion. Second that relapses are due to the action of a newly acquired contagion from a different source from that of the original contagion, in short, reinfection. In the case I report with an interval of only five days between defervescence and recurrence of the disease I am inclined to the belief that the relapse was not a recrudescence but a true reinfection from the mother. The first theory certainly cannot account for subsequent attacks recurring at intervals of one and a half to seven

years and unless there is a fixed proximal time limit on immunity it may be quite possible to have a reinfection, after three or five days as is certainly the case after months or years have elapsed.

The question as between reinfection and recrudescence involves two problems, viz.; the factors which render the disease a self-limited one, running a definite course and the factors which constitute immunity. If the disease terminates by reason of having exhausted a certain pabulum in the economy on which its existence depends there can be no recrudescence. There may be reinfection where the primary attack has not established immunity, providing the pabulum on which the infection subsists has been reproduced in the economy of the individual. If the disease is self-limited by reason of eliminations or secretions of the infecting germ, or a change in the plasma of the blood caused by its presence acting as a suicidal poison to the invader, then constitutional symptoms having disappeared the return of the disease after a variable period of three days or three years cannot be regarded as a recrudescence but a reinfection.

The very fact of the rarity of recurrence is in itself an argument against recrudescence, for the environments and the desquamating epidermis of the patient himself are teeming with the infectious germs in full toxic vigor long after his complete recovery, but immune to the germ developed in his own economy he may be susceptible to the organism germinated in another body and fall a victim by reinfection even after a respite of but a few days.

Given a case of speedy recurrence in the presence of a second source of infection, as in the unique case I have reported, is not the inference more conclusive of reinfection than of recrudescence? If the mother had been attacked a few months instead of a few days later and the child had as promptly responded to a second manifestation of the disease there could be only one conclusion, that of reinfection.

¹*Medical Record*, February 18, 1888.

²*Idem*.

³*Allgemeine Medical Central-Zeitung*, 1887.

⁴Keating's *Cyclopædia*.

⁵*Medical Record*, April, 15, 1893.

LEGISLATION FOR THE PREVENTION OF BLINDNESS.

BY BOERNE BETTMAN, M. D.

PROFESSOR OF OPHTHALMOLOGY IN THE CHICAGO POST-GRADUATE MEDICAL SCHOOL ; OCULIST AND AURIST TO THE MICHAEL REESE AND GERMAN HOTPITALS ; ATTENDING SURGEON TO THE ILLINOIS CHARITY EYE AND EAR INFIRMARY ; PROFESSOR OF OPHTHALMOLOGY AND OTOTOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO.

The object of this paper is to call the attention of the society to the need of legislation for the prevention of blindness. The necessity for adopting such a measure can only then be advocated when sufficient data have been collected, indicating the cause and increase of blindness, and then demonstrating that legal restrictions would decrease to a large percentage this awful calamity. A thorough elucidation of these facts would tend toward elaboration. I will content myself, therefore, by bringing to your attention in a concise form, the main features only. If we consult the United States census from the year 1850 to date, we learn that the number of blind enumerated during the various decades is as follows :

1850	1860	1870	1880	1890
9,794	12,658	20,320	48,928	50,411

If compared with the population, which increased from 23,191,876 in 1850 to 62,622,250 in 1890, we obtain the following ratios :

422	blind to 1,000,000 of the population in 1850.
403	" " " " " " " 1860.
527	" " " " " " " 1870.
976	" " " " " " " 1880.
805	" " " " " " " 1890.

As we are especially concerned about our own State of Illinois, it will be interesting to ascertain the number of blind allotted to us in the records quoted. The following table comprises both the total number of blind for each period, and their ratio to one million of the population :

NUMBER OF BLIND IN THE STATE OF ILLINOIS.				
1850	1860	1870	1880	1890
264	476	1,042	2,615	2,834
NUMBER OF BLIND TO ONE MILLION INHABITANTS.				
310	278	410	850	741

It will be observed that the proportion of these sadly afflicted has greatly increased, notably so in 1880, and again decreased in 1890. These apparent inaccuracies are due to the methods of

enumeration adopted and are fully explained in the following words of Dr. Wines, quoted from the report of the Board of Public Charities of Illinois, 1892. "With regard to the so-called 'defective' classes, it should be known that Dr. Wines, in 1880, supplemented the enumerators' returns by correspondence with physicians, who added many names to the lists. This correspondence was not renewed in 1890, which accounts at least in a large degree for the seeming slight falling off in the ratio in 1890."

The above figures will suffice to prove the existence of a large class in our community whose infirmity makes them dependent upon others. Deprived of perhaps the most important sense, their mode of education and subsequent training demand the existence of schools and workshops equipped with all the requirements of a model blind asylum and industrial school. The large outlay of money this entails can only be undertaken by the State. The total amount appropriated for the Blind Asylum in Jacksonville, from 1849 to 1891, was \$1,156,690.50. Dr. Howe states that the blind of the State of New York costs directly and indirectly over a million and a half of dollars yearly. If computed for the entire civilized world, the sum would reach an enormous amount.

If we regard the question from a philanthropic standpoint, we become so thoroughly alive to the helpless condition of our crippled brethren that our hearts go out to them in sympathy, and every human sentiment is aroused not only to better their state, but to improve the condition of affairs which in a large measure is responsible for their affliction. Physicians cannot deal much with sentiment. Our sceptic science calls first for research, and then for the practical application of our investigations. We will, therefore, next inquire into the causes of blindness and later on into its preventive measures.

Valuable statistics have been compiled both in this country and in Europe with reference to those questions, which are the results of much labor and patient, searching inquiries. Magnus¹ collected 2,528 cases of bilateral blindness which, when grouped under four heads, attribute 3.77 per cent to congenital blindness, 66.50 per cent to idiopathic diseases of the eye, 10.73 per cent to injuries and the remaining 19 per cent to diseases of the body which affect the eyes secondarily.

I could multiply these statistics by referring to those collected by Cohn, Krückow, Skrebitsky and others. Those I have quoted will suffice for illustration. The above figures clearly indicate that

¹Die Blindheit, ihre Entstehung und ihre Verhütung, Breslau, 1883.

in order to prevent loss of sight in a great proportion of cases, our efforts must be concentrated in one direction. Congenital defects of the eye and ocular lesions due to bodily ailments are comparatively few. They necessarily are not so amenable to preventive measures as are those caused by idiopathic diseases of the eyeball and injuries of that organ. The latter can be frequently ascribed to carelessness and defy intervention. The second category of cases, those resulting from primary diseases of the organ of vision demand our special attention, for they comprise the largest percentage and come directly within our sphere of action. An analysis of this group will demonstrate that blennorrhœa neonatorum must be held responsible for the largest quota, almost 11 per cent. If statistics of the youthful blind, such as are found in our blind asylums, are tabulated the percentage of blindness due to infectious infantile disease, rapidly increases. Thus Reinhart² found 30.39 per cent in a material of 2,165 individuals, inmates of twenty-two blind asylums. Claisse, of Paris, 46 per cent; Katz, of Berlin, 41 per cent, and Magnus, of Breslau, 34 per cent.

Having shown that blennorrhœa neonatorum is responsible to a great extent for blindness in the young, the question will naturally arise, Can this disease be prevented, and if so, how?

We all know that it can and every intelligent physician has heard of and should conscientiously carry out the prophylactic measures known as Credé's and Hausmann's methods. Hausmann aims at cleanliness and strives to render the tract through which the new born child must pass aseptic and thereby prevent infection of the conjunctiva. Credé, on the other hand, aims at innocuousness of the germs which may have lodged in the conjunctival sac. Since it is impossible to determine at birth of the child whether infection has occurred or not, all eyes are subjected to the same prophylactic treatment. A single drop of a two per cent solution of nitrate of silver is dropped between the lids of every new born child.

Should this disease make its appearance, notwithstanding the introduction of preventive measures, or owing to a lack of their enforcement, it can be treated and vision saved in the great majority of cases, provided the physician's attention is called to it at an early date. This disease calls for prompt interference. Delay of a few hours is often dangerous. Ulceration of the cornea and loss of sight can in most instances be avoided, provided the proper remedies are applied at the very onset of the inflammation. That

² Dr. Ernest Fuchs. *Die Ursachen und die Verhütung der Blindheit*, 1885.

this is not done and that the dictates of Credé are not complied with in many, oft too many instances, is a fact known to every physician and especially to oculists of some experience. In large cities and in the country midwives lawfully attend to confinements and unfortunately also to the inflamed eyes of the babes. The last "Official Register of Midwives" for the State of Illinois contains a list of 1,152. Of these, 700 are located in the city of Chicago. Of the 28,742 births recorded in Cook County last year, over one-half, I have been assured by the registrar of births, were reported by midwives. We all have come in contact with the results of their ministrations. The usual popular remedies, such as instillation of breast milk, camomile tea and other noxious agencies are applied to the swollen, suppurating lids, and only after the loss of precious time when complications have arisen, the physician is at last, and unfortunately too late, consulted. Such sad examples of ignorance and criminal negligence have come under my notice dozens of times. Very often the charge of carelessness must be laid at the door of the parents. Either ignorance or penury induce them to listen to the advice of foolish counselors. It cannot be said with a shrug of the shoulders that they themselves reap the harvest of their sowing. The innocent child whose future life is blighted is thrown upon the care of society at large and becomes a burden to the State. It might be said that midwives should be taught to carry out the safeguards referred to. But they are not, and furthermore persons who are not acquainted with the first principles of medicine cannot require the requisite knowledge and should not be permitted, except for unavoidable reasons to assume charge of so dangerous a disease. Many otherwise well qualified practitioners are not capable of coping with it, surely a midwife cannot be entrusted with its care. In such communities, where the population is sparse and medical men few, the treatment must be entrusted to the midwife over whom the State Board of Health should exercise vigorous control by refusing a license unless exact knowledge of this branch of her duties is shown. These detailed reasons prompted the authorities of Switzerland in 1868, of Prussia in 1878, Austria 1882, France in 1880, and America in 1891, to force midwives and nurses to report inflammation of newborn babes' eyes at an early date, to call in the aid of a physician and thus prevent to a large extent blindness.

This brings us now to the essential features of this paper, or as Dr. Howe, in his address, read at the forty-fourth annual meeting, of the American Medical Association, says: "What means

can be adopted to bring these children as soon as possible to the notice of a competent physician? Education of the laity is useless; urging the nurses, professional or others, is equally insufficient. It remains only to place the responsibility at once where it belongs, by imposing upon such persons a severe penalty. The surest and best means of accomplishing this is undoubtedly by legislation."

New York was the first State in the Union to take up this subject, and through the untiring efforts of Dr. Lucien Howe and his colleagues, both Houses of the Legislature of 1890 passed without a dissenting vote the following act, known as Chapter 41 of the Laws of 1890.

AN ACT FOR THE PREVENTION OF BLINDNESS.

SECTION 1. Should any midwife or nurse having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse so having charge of such infant, to report the fact in writing, within six hours, to the Health Officer or some legally qualified practitioner of medicine of the city, town or district, in which the parents of the infant reside.

SEC. 2. Any failure to comply with the provisions of this act, shall be punishable by a fine of not to exceed one hundred dollars, or imprisonment not to exceed six months, or both.

SEC. 3. This act shall take effect on the first of September, Eighteen Hundred and Ninety.

The word "notice" in the first sentence was omitted in a similar law enacted in Maine in 1891, and known as 97 of the Senate.

This Law reads as follows:

SECTION 1. Should one or both eyes of an infant become reddened or inflamed at any time after birth it shall be the duty of the midwife, nurse or person having charge of said infant, to report the condition of the eyes at once to some legally qualified practitioner of medicine of the city, town or district, in which the parents of the infant reside.

SEC. 2. Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed one hundred dollars or imprisonment not to exceed six months, or both.

SEC. 3. This act shall take effect on the first day of June, 1891.

Rhode Island only lately, in 1893, followed the good example of her big sisters by an enactment practically similar to theirs. I will again quote Dr. Howe to answer a question which has been re-

peatedly put to me and to which he so pertinently and concisely replies. He says:

"A question might arise as to what advantage it is to oblige nurses and midwives to report a disease of which a certain class of so-called doctors are almost as ignorant as the nurses themselves. The answer to this is threefold: 1. The nurse is made to appreciate her responsibility, not only in that case but in others, and to know that the condition indicated by redness and discharge is not anything to be trifled with; 2. The parents also become alarmed when they know the disease is sufficiently serious to be the subject of special legislation, so that in choosing a practitioner they select with rather more than ordinary care. Finally, as for the physician himself. If he accepts the case he feels that he must understand it thoroughly, and he will be apt to look it up with considerable care in text-books and treat it intelligently. Above all, if he fails to do that, the parents have a responsible individual against whom they can with perfect justice enter a suit for malpractice, and if he has proved himself incompetent, he not only suffers the penalty which a law has provided for him, but one such case would be an example to him and to other practitioners in the community in which it occurred."

And now, Gentlemen, we are confronted with the momentous question: Whether the great State of Illinois which has shown itself so willing and prompt to champion the cause of all worthy enterprises will be behind hand in this deserving undertaking. I think not. It remains only for us, the physicians of this commonwealth, to show by united action and unanimous endorsement, that we favor the immediate enforcement of such legislation. The representatives will then be convinced of the need of such a measure, and no doubt will readily make it a law. At the March meeting of the Chicago Society of Ophthalmology and Otology, my paper on "Legislation for the Prevention of Blindness" called forth an animated discussion, which resulted in the adoption of the following resolutions:

Whereas, Statistics compiled in this country and in Europe demonstrate that fully 25 per cent of our blind owe their affliction to an inflammation of the eyes appearing a few days after birth, and

Whereas, Experience has proved that the inflammation can be cured, and the eyesight saved in the majority of cases if treatment is instituted at an early stage of the disease, and

Whereas, The destruction of the eye and blindness are usually the result of delay in treatment; be it

Resolved, That we heartily recommend that the people of the State of Illinois, represented in senate and assembly, do enact as follows:

Section 1. Should one or both eyes of an infant become inflamed, swollen or reddened at any time within two weeks after its birth, it shall be the duty of the midwife or nurse having charge of such infant, to report in writing, within six hours to the health officer, or some legally qualified practitioner of the city, town or district in which the parents of the infant reside, the fact that such inflammation, or swelling, or redness of the eyes exists.

Sec. 2. Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed two hundred dollars, or imprisonment not to exceed six months, or both.

F. C. HOTZ, M. D.,	} Committee.
LYMAN WARE, M. D.,	
BOERNE BETTMAN, M. D.	

I think, gentlemen, this society should put itself on record and aid the cause by passing resolutions to the same effect. We thus not only indicate to the world our approbation of preventive medicine, but give a moral support to the instigators of this movement.

VENETIAN BUILDING.

DEMONSTRATION OF PATHOLOGICAL SPECIMENS.

By A. J. OCHSNER, M. D.

SURGEON IN CHIEF OF THE AGUSTANA HOSPITAL, ETC., CHICAGO.

My first specimen, a uterine fibroid, was removed from a patient forty years of age. She had previously been healthy, and there was no history of pathological growths of any kind in the family. She had first menstruated at sixteen; had borne one child at twenty-eight. At the age of thirty-five menstruation began to be profuse. Internal remedies were without benefit. Eighteen months before she came under my care she first noticed a tumor in the region of the uterus, but paid no attention to this. In the meantime the hemorrhages became so severe that the patient was extremely anemic and almost unable to be about. Two days before the patient came under my care she began to suffer suddenly from severe labor pains. Her physician, Dr. Edward Cross, examined her and found the uterus contracting upon this tumor; he administered an anodyne, but the pains continued for two hours until the cervix was fully dilated. Upon examining the patient I found this tumor presenting through the fully dilated cervix like the head of a child. I introduced first one finger and later the entire hand between the tumor and the uterine tissues and carefully separated all the adhesions up to a point shown on the specimen by these

rough fibers which were separated later. I now applied obstetrical forceps to the growth, and finding it impossible to deliver without rupturing the perineum I made a lateral incision through this structure. It required much force to deliver the tumor through the pelvis. The cavity of the uterus was at once carefully packed with iodoform gauze and the wound in the perineum closed with deep silk sutures. The tumor is oval in form and measured at the time of its delivery fifteen inches in its smaller, and twenty-two inches in its greater, circumference. It is a simple fibro-myoma and remarkable only, aside from the unusual method of its removal, for the fact that it grew to such a size in its submucous position without giving rise to uterine contractions. On the fourth day after the operation I removed a portion of the iodoform gauze packing, and the remainder on the ninth day. After this time the patient received hot douches twice daily until the wound had healed.

The second specimen is a uterus, containing myomata, which I removed by vaginal hysterectomy five weeks ago from a patient thirty-six years of age. She was married at the age of eighteen, and has been a widow since her twenty-third year. She was never pregnant. She began to menstruate at the age of thirteen, always suffered severely, and during the past three years the flow has been very profuse. Eight months ago a surgeon in Minneapolis performed an abdominal section for the removal of a uterine fibroid, which could be felt through the abdominal wall. He found inflammatory adhesions and removed both ovaries in the hope of thus stopping the hemorrhage. For six weeks after the operation the patient seemed relieved, but there was a sudden recurrence of the hemorrhages, which were so severe that the patient became almost bloodless. It was necessary to keep the uterus and the vagina tamponed constantly in order to control the hemorrhage, which would recur immediately upon removing the tampon. During the three years of her illness the patient had received careful medical treatment almost constantly, but this had been of little or no benefit.

Under these conditions I decided to remove the uterus by vaginal hysterectomy, after dilating the cervix sufficiently to insert my finger and finding nothing which seemed sufficient to cause such profuse bleeding.

The operation was performed in the usual way, by making an incision through the mucous membrane around the cervix, opening the peritoneum anteriorly and posteriorly by blunt dissection,

grasping the tissues on each side with strong forceps and cutting them on the side of the uterus. The operation was unusually difficult because of the numerous adhesions and the thickening of the surrounding tissues due to inflammatory conditions which had previously existed. All the blood vessels were very much enlarged and required the application of forceps and ligatures at points which under ordinary conditions do not require any attention. After ligating most of the portions of tissue held by the various forceps I tamponed the wound with iodoform gauze and left several of the forceps in place. The forceps were removed after two days; portions of the gauze packing three days, and six days later; and the remainder twelve days after the operation. From this time on the patient received hot water douches night and morning until the wound had closed.

The specimen shows an intramural fibroid tumor as large as a walnut in the upper portion of the uterus, and a submucous fibroid as large as a filbert in the upper part of the posterior wall; and it was this smaller tumor which gave rise to the enormous hemorrhages which the attending physician described as having been almost as alarming as post-partum hemorrhages, controllable only by very careful tamponing. This can be accounted for by the presence of these enormously enlarged blood vessels, which can be appreciated even now after the specimen has been preserved in alcohol for over a month.

This third specimen, consisting of a uterus and three fibroid tumors, each one as large as an orange, and several smaller ones, I removed by vaginal hysterectomy ten days ago from a patient sixty years of age. She menstruated at sixteen; was married at twenty, gave birth to a healthy child at twenty-one, and had five miscarriages after this, the first one being caused by a fall. At the age of thirty-four she noticed an abdominal tumor which was diagnosed as a fibroid of the uterus. It increased in size, notwithstanding medical treatment, until it reached the size of a six months' pregnancy. At this time the patient fell into the hands of a charlatan who gave her rubbings of personal magnetism, and as about this same time the tumor began to decrease in size it was attributed to the magnetism.

You notice that one of these three tumors is very hard and white and cuts like dry putty. It is composed very largely of calcareous deposits which have accumulated during a period of degeneration extending probably over more than twenty years, judging

from the history. It is probable that at that time the growth was twenty times, its present size.

The other fibroids are of recent origin and do not contain any calcareous deposits.

The patient suffered from her thirtieth to her fifty-second year from profuse and painful menstruation, and for the past five years from pain caused by the pressure of this hardened fibroid upon the bladder and the rectum. During the past few months this pain has become almost unbearable, possibly from the weight of the two new tumors upon the original one.

The operation consisted in making the ordinary incision around the cervix and making a blunt dissection anteriorly and posteriorly. Feeling this calcareous tumor in the cul-de-sac, I loosened the adhesions with my finger and enucleated the tumor. Then the broad ligaments were ligated and the uterus, together with the remaining tumors, were removed with some difficulty. The wound was tamponed with iodoform gauze, which was partly removed on the fifth day, and the remainder on the tenth, leaving the healing to be completed in the usual way.

The next specimen is a carcinoma of the rectum which I removed two weeks ago by Kraskes' method from a patient forty-nine years of age. The patient had been healthy until one year ago, when he began to suffer from bearing down pain and an inability to have a free evacuation of the bowels. An examination showed this circular carcinoma to be located about five inches above the anus at the junction of the sigmoid flexure and the rectum.

In order to prevent dangerous infection from the passage of feces over the wound I performed inguinal colostomy according to Mydl's method a week before resecting the rectum.

The operation consisted in the following steps: An incision was made from the left sacro-iliac synchondrosis to a point just above the anus. After reflecting the soft tissues down to the sacrum and coccyx, the sacrum was chiseled off transversely through the upper part of the fourth sacral vertebra. The lower portion, together with the coccyx, was removed. This exposed the tumor perfectly. It was now easy to loosen it by blunt dissection. Its anterior surface was covered with peritoneum, which had to be removed in order to prevent recurrence in this location, so I opened the abdominal cavity on each side of the intestine and introduced a sponge, to which a strong silk cord had been attached, in order to prevent the protrusion of intestines during the remainder of the operation. A clamp was now applied to the intestine one and one-

half inches above the tumor, another one-half an inch lower, and another one an inch below the tumor. The lower end of the bowel was now cleansed in order to prevent infection from this source. The tumor was then removed by severing the intestine above and below the two clamps on each side of the tumor. In this instance the sigmoid flexure of the colon was very long, so it was possible to bring down the severed intestine from above, draw it through the anus, and hold it in place by means of half a dozen silk sutures which were tied over rubber adhesive strips. The peritoneal cavity was shut off with catgut stitches and the wound packed with iodoform gauze.

This method enables one to perform the operation in from twenty to forty minutes without fear of hemorrhage or infection, because the entire field is exposed to view, which, moreover, aids greatly in making a thorough removal possible.

The next specimen consists of an enterolith almost cubical in form, as large as a hickory nut, which has the appearance of a gallstone. I have examined it microscopically and find it to consist of fecal matter intermixed with enormous numbers of bacteria.

Twelve years ago the patient, a lady 25 years of age, suffered from peritonitis confined to the region of the cecum. This attack occurred two days after the patient had fallen from a horse and it was thought that the fall had caused the peritonitis, but later it was supposed that there was no relation between the fall and the peritonitis and that the patient had an attack of appendicitis. She was confined to bed for six months and has had pain in the region of the cecum ever since that time. Whenever she attempted to ride in a carriage or to exert herself there was a return of the peritonitis more or less severe.

Five weeks ago she had a recurrence so severe that she requested an operation, which I performed a little over two weeks ago, after the acute symptoms had subsided.

The operation consisted in the ordinary vertical incision half way between the umbilicus and the anterior superior spine of the ilium, exposing a condition which would be expected to exist after a severe attack of peritonitis. There were strong adhesions between the cecum, the ileum, the Fallopian tube and ovary and the bladder; and this enterolith could be felt plainly through the wall of the cecum. All the adhesions were carefully separated and the remnant of the vermiform appendix, about as large as the end of a thumb, was found to contain this enterolith. By manip-

ulations it was dislodged and forced into the ascending colon, whence it was expelled on the following day with an evacuation of the bowel. The wound was closed with the exception of the ends, through which strands of gauze were passed down to the cecum. These were removed on the seventh day after the operation. It is of course impossible to tell how long this enterolith had existed, and whether it was the focus from which the infection came in each of these successive attacks of peritonitis.

710 SEDGWICK ST.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH.
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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THE CHICAGO MEDICAL SOCIETY.

Regular meeting, April 16, 1894.

Dr. McArthur, the retiring President, in the chair.

Minutes of the last meeting read and approved.

In retiring Dr. McArthur introduced Dr. Senn, who was led to the chair by Ex-President's Doering and Graham.

Dr. Senn expressed his appreciation of the honor conferred, and laid out his plans for the ensuing year.

Dr. A. H. BURR read a paper, see page 385, on

REINFECTION VS. RECRUDESCENCE IN RECURRENT SCARLATINA.

Dr. A. H. FOSTER: I would like to hear the testimony of members who have gone through with a great deal of scarlet fever, on the point of reinfection. Some very interesting cases have occurred in my experience in the severe epidemics of 1867-68 and 1876-77, those being the two worst epidemics I have passed through. My first case in the spring of 1868 was one in which the eruption reappeared in its full force on the 13th day. It seemed singular to me, but I know I have seen similar cases since. In the 1876 epidemic I had a family in which there were five or six children where one child had scarlet fever and then each child in succession had a sore throat, one after the other until it came around to the first child again, and that had a recurrence, then all the children in their order had the scarlet fever. During the winter of

1876 I had a family of four children, two of them were sick with it, one severely and one mildly, and in the summer the mother opened a trunk to get some clothing for some poor people, and within a week the child who had the disease mildly in the winter had it more severely and the rest of the children had it mildly. I have become so accustomed to the recurrence of the scarlet fever poison that I am not surprised at it, but I expect to see scarlet fever and measles recur, and we know there are practitioners who have seen smallpox recur. These cases of recurrence are from a few days up to six months, or six years.

Dr. N. SENN: I would ask Dr. Burr how he would distinguish, so far as the appearance is concerned, between the genuine scarlet fever eruption and the eruption which so closely resembles it, occurring in sepsis?

Dr. A. H. BURR: Osler, I believe, states that recurrent scarlatina occurs the least often of all the exanthemata; sometimes I feel like classing typhoid fever among the exanthemata. It is a self-limited, infectious disease with eruption. In my own experience I have not seen a recurrence. I don't know that I have seen any case on record of typhoid recurring, but we know of its true germ origin and we know it runs a self-limited course, with its constitutional and local symptoms. Measles perhaps recurs oftener than any of these infectious exanthematous diseases, as I have seen quite frequently, but the case I reported is the only one I have met in quite a large number of cases of scarlet fever, and in looking up the literature I have found only those I mentioned.

I think Dr. Foster has some very interesting additions to make to this subject of recurrent scarlet fever and it would be well to put them on record so that it may go a little way toward clearing up some of these questions of immunity.

With regard to the differential diagnosis between a septic and secondary infection and that of scarlet fever, it seems to me that the local symptoms would perhaps give the best diagnostic differentiation. There are many cases of urticaria, for instance, many cases of rash from digestive troubles arising from ferments in the digestive canal, the peptones and the albuminoses and the decomposition going on in the intestines which will give reflex symptoms of rash upon the surface of the body, simulating very closely scarlet fever. I do not find in those cases that there is any manifestation of local trouble in the throat, which is so characteristic of scarlatina, both primary and secondary. I have not had experience in these cases of sepsis following surgical wounds or

injuries which sometimes result in these rashes. I think the majority of rashes on the surface that appear much like scarlet fever are due to intestinal auto-infection.

Dr. J. R. PENNINGTON read a paper on

PILES ; A FEW GENERAL REMARKS.

See May RECORDER.

Dr. J. B. BACON: I am very much pleased with the paper and am also glad of the stand the author takes with regard to the reflexes caused by rectal diseases, and also that he advocates the more thorough study and examination of the rectum by students and general practitioners. We all know that there is a great deal of dishonorable work going on in the United States in the treatment of reflexes, originating as they claim from rectal diseases. It is very difficult for the young student who may have just left college, or the general practitioner, to tell his colleagues that a man practicing in his neighborhood or in the town is doing a great deal of injury to the people and operating a great many times for diseases that have no relation whatever to the rectum. But unless students are taught more thoroughly how to examine the rectum and make a diagnosis it is utterly impossible for them to combat the fallacies of the irregulars practicing in the neighborhood. Therefore I think it is very essential that diseases of the rectum should be more thoroughly taught and studied.

I am also glad to hear the author speak unfavorably of the Whitehead operation. It may be that Whitehead has excellent results with his method or performing his operation, but I must say that almost every month somebody is sent to me with stricture of the anus resulting from this procedure, and I think it is too dangerous an operation to do except in very rare cases.

Dr. BOERNE BETTMAN read a paper, see page 388, on

LEGISLATION FOR THE PREVENTION OF BLINDNESS,

and the President appointed as a Committee on Legislation for the Prevention of Blindness, Drs. Bettman, Doering and Graham.

Dr. SENN stated that he was unable to present his specimen of large myofibroma, removed by laparo-myomectomy, it having been spoiled.

PRESENTATION OF PATIENT.

Dr. G. E. KRIEGER: In addition to the paper I read before this society a month ago on the effect of spermine injections, I wish to exhibit this patient who used to suffer from chorea.

The patient is a girl ten years of age, resident of South Chi-

cago. Since the middle of last August, she has suffered from chorea which became so severe that she could not walk. She entirely lost control of her limbs, legs as well as arms; she could not feed herself, could not carry anything in her hands, and was a perfect invalid.

She came under the care of Dr. Ed. Bert, who advised the parents to submit her to the treatment of spermine injections. The result was that after five injections all the irritability, which was so pronounced, was gone, and she became a normal child, as you see her to-night, and has ever since been entirely well. Before the treatment she could not sleep, but was very restless, but now she sleeps as soundly as any one, eats normally, and is in every other way perfectly developed.

I have received reports from physicians as to different diseases that have been treated by spermine injections; one was a case of locomotor ataxia that improved after ten spermine injections so much that the patient could walk fairly well alone for about half a mile without fatigue.

Another patient suffering from severe neurasthenia was greatly improved after six spermine injections. A special feature I would mention is the effect of spermine in narcosis; it removes the bad effect of anesthetics, chloroform as well as ether. Spermine injections have been used quite extensively in the Chicago Hospital with uniformly good results, the patients awake after narcosis without nausea or vomiting.

In about forty-five cases spermine injections were used under my supervision, and in about ninety per cent of these cases the effect was perfect; in ten per cent it was very difficult to decide whether a mistake was made regarding the time in which the spermine injections were given, they being administered during the narcosis, instead of ten minutes before, or something else was to blame for lack of result. Spermine injections have had, so far, in a great many cases a very good stimulating effect, and I would repeat my offer to the profession that if any one wishes to make an experiment I will be glad to furnish the material.

On motion, the society adjourned.

JUNIUS C. HOAG, Secretary.

A regular meeting was held at the Schiller Club, May 7, 1894.

President Senn in the chair.

The minutes of the preceding meeting were read and approved.

The committee on membership reported favorably on the applications of Drs. C. E. Mainerre, 552 La Salle Ave.; Louis R. Eichberg, 4056 Indiana Ave.; I. Clark Gary, 2184 Archer Ave.; J. N. Bartholomew, 133 Lincoln Ave.; and Otto T. Freer, 288 E. Huron Street, and on motion the Secretary cast the ballot of the society for their election.

The applications of Drs. L. W. Whitmer, L. W. Dudley, H. S. Worthley and A. V. Cole were read and referred to the Committee on Membership.

Dr. RICHARD DEWEY read a paper on

THE MENTAL CONDITION OF JOHN HART, THE DOUBLE SORORICIDE.

Dr. H. M. BANNISTER: I entirely agree with the conclusions of the essayist, with a possible exception as to the form of insanity. I should be inclined to suspect epilepsy in such a case, although there was no absolute proof of it; but there were evidently organic defects congenital and acquired. It was very unfortunate that a post-mortem was not allowed to demonstrate the probable anomalies and pathological conditions of the brain. There appears, from the account given, to be no doubt as to the abnormal mental condition of the individual, and, under the circumstances, his execution seems like a serious miscarriage of justice.

Dr. SANGER BROWN: Many of the statements from which Dr. Dewey made his deductions were not altogether susceptible of proof, and he had to decide in his own mind how far they were credible in drawing his conclusions. Accepting them as he has done I think we all agree with him that insanity actually existed. As to the form of insanity, one of the most prominent features of the condition would be met by using some term embracing the word dementia. One of the most striking evidences of insanity consists in the fact of the letter, which was put in evidence, having been written when he was in California a year or so prior to the act, showing that he had a very proper and natural feeling toward his relatives at that time, and also that he had sufficient command over himself to hold a position as laborer, and if we are to believe the letter, he accumulated money, whereas after he came home he was unable to apply himself in any way, wandered about, with many features of insanity, in which dementia was more prominent than delusion.

Dr. ARCHIBALD CHURCH: One point made by the essayist strikes me as being of the first importance, that is the possibility of a person actually insane feigning insanity. The difficulty encountered is to elicit from the patient his actual delusions in contradistinction to those he fabricates in order to give an appearance of insanity. The problem of dealing with this class of criminals satisfactorily for the public safety is a very urgent matter. The public justly entertains the feeling that should they be committed to an asylum after the lapse of a longer or shorter period they are likely to regain their liberty either by escape from hospitals which are not provided with the means of secluding them in safety, or from their being discharged by the superintendent as being cured. The liberation of these cases should be in the highest executive hands and the right of habeas corpus should be removed from them.

Dr. RICHARD DEWEY, in closing the discussion, said: The form of insanity existing in this case is certainly a question requiring a great deal of consideration. The diagnosis was not absolutely satisfactory to my own mind, but I felt justified in describing the patient to the court as having delusional insanity; that was certainly intelligible and true, but in the refinements of classification it would require more knowledge of the case than existed to determine whether the patient was epileptic, as Dr. Bannister suggests; whether he was a victim of paranoia, or affected, as Dr. Brown also naturally judges from other of his symptoms, with dementia.

On motion, Dr. Clark Gapen, of Kankakee, whose membership lapsed on account of removal from the State, was restored to membership.

Dr. C. FENGER exhibited a patient to illustrate "transplantation of large free flaps of skin to restore function of hand" and made some remarks on methods of skin-grafting.

Dr. CARL BECK presented a case of injury, similar to that in Dr. Fenger's case, in which pedunculated flaps were used.

Remarks on skin-grafting were also made by Dr. Ochsner.

At the request of Dr. Pierce his paper was deferred to the next meeting.

Dr. OCHSNER demonstrated pathological specimens as follows:

1. CARCINOMA RECTI.
2. ENTEROLITH.
3. UTERINE FIBROID REMOVED PER VAGINAM.

See page 394.

Dr. CARL BECK demonstrated a glio-sarcoma of the brain.

Dr. DEWEY, on behalf of the committee appointed for that purpose presented a draft of a bill regarding expert witnesses for submission to the Illinois State Medical Society, this draft having been approved by the joint committees appointed by the various societies of this city.

On motion, the Society indorsed the recommendations contained in the committee report.

There were eighty-eight members and visitors in attendance.

On motion, the society adjourned.

T. C. PLUMMER, Sec'y pro tempore.

CHICAGO PATHOLOGICAL SOCIETY.

Regular Meeting, April 9, 1894, Laboratory Building, Rush Medical College.

Meeting called to order by President Patton.

Minutes of previous meeting read and approved.

Censors reported favorably on the names of Drs. Sanger Brown, B. B. Edes, Clark W. Hawley, and Wm. F. Waugh, and on motion of Dr. Clark the Secretary was instructed to cast the ballot of the Society for these names. Ballot so cast, and they were declared elected to membership.

The name of Dr. D. Lee Shaw, graduate Rush Medical College, 1891, residence, 577 West Congress Street, received, and referred to the Board of Censors.

Dr. WALTER M. FITCH reported a case of insular sclerosis.

Dr. ROBERT H. BABCOCK reported a case of

IDIOPATHIC ENLARGEMENT OF THE HEART,

and presented specimens of the heart, liver and kidneys. See May RECORDER.

Dr. SANGER BROWN: It has occurred to me, after listening with much interest to both the clinical and microscopical reports in this case, to ask for a still more definite reason why it should not be regarded as a case of fibroid kidney with secondary cardiac enlargement?

It is a subject to which I have not paid very strict attention for some years, but I think not very long ago, if, in a case like this one, a diagnosis of cardiac enlargement secondary to kidney disease had been made during life, the post-mortem findings would

have been accepted as strongly supporting, if not positively proving the diagnosis.

Dr. HOMER M. THOMAS: Idiopathic enlargement of the heart is an affection of much interest. The etiology of the affection may be grouped under two principal causes, heredity and retardation of nutrition. As active causes, doubtless alcoholism and undue muscular exertion are the most frequent. Intellectual overwork is a prolific cause, leading up to physical debility, and finally muscular degeneracy. Among the poorer classes alcoholism and overwork lead to idiopathic enlargement of the heart, and among the wealthier classes, a sedentary life, overeating, abuse of tobacco, debauches and excesses of every kind, lead to the same disease. I have been interested in Dr. Babcock's case, and am in general accord with his conclusions.

Dr. J. M. PATTON: Fraenzel in his admirable monograph on the subject classifies these lesions of the heart something as follows: That idiopathic enlargement of the heart is to express enlargements which are not due to valvular lesions. Those that are due to increase in the tension of the vascular system from kidney disease or arterial sclerosis; those that are due to overwork; those that are due to excessive consumption of food and drink; those that are due to degenerative processes in the muscles, caused by acute diseases like fevers; and those that are due to functional inability of the muscles caused by nervous influence. Schraeder makes the objection that cases like the one presented to-night are not idiopathic, because they are essentially secondary conditions; secondary to increase in the vascular tension from some cause, which is a very pertinent objection, it seems to me.

If we take the abstract meaning of the word idiopathic which is a compound of two words, meaning one's own condition, and used in the sense of being independent of other diseased conditions. In other words, you speak of the idiopathic disease of a certain organ in the sense that it is independent of any abnormal condition elsewhere in the body that could give rise to it; if the term is to be used in that sense, it would seem to me the only enlargement of the heart which could strictly be called idiopathic, would be the valvular lesions themselves, because enlargements of the heart which are consequences of valvular lesions are dependent on changes in valves, which are a part of the heart structure, and not on the increase of tension or its diminution in the vascular system.

Then you might class as idiopathic certain enlargements of

the heart which result from degeneration of the muscle, as in acute nephritis. Although it is due to the nephritis, it is probably due to the nonelimination of toxins, but this is open to the same objection Schraeder makes in regard to other diseases of the kidney, and it is somewhat of a question as to where you will draw the line. At any rate it is evident the heart does not enlarge unless there is a call for more work on the part of the muscle, and an increase in the intraventricular tension above the power of the muscle to withstand, that may be due to actual increase in the vascular tension, or to relative increase by the diminution of the power of the muscle. Idiopathic is a particularly unscientific term in this connection and should be dropped.

I heartily endorse the remarks of Dr. Babcock in regard to fatty degeneration in this case.

Dr. H. B. STEHMAN: I would like to ask Dr. Babcock how, in making up his diagnosis, he distinguishes enlargement of the heart from fatty deposit? How did he exclude fatty heart?

Dr. ROBERT H. BABCOCK, in closing the discussion, said: With reference to Dr. Brown's question, whether such a heart could not be explained by the condition of the kidney. Unquestionably such enlargements, mainly of the left ventricle, are secondary to chronic interstitial nephritis, but in most instances interstitial changes in the kidneys are more advanced than in this one; the kidneys are contracted and small and the heart changes are subordinate to those in the vessels and kidneys. In this case, although there was interstitial thickening mainly observable in the left kidney, the changes, as claimed by Dr. Purdy, were not enough advanced to make the condition primarily one of interstitial nephritis; the condition of the kidneys was not responsible for the failure of the heart. Ordinarily the failure of the heart is dependent upon a degeneration of the heart muscle, and here the heart gave out long before the condition of the other viscera required that it should; hence this is a case falling properly under the category of weak heart without reference to the condition of the kidney further than its etiological influence.

With reference to Dr. Thomas' objection to the asserted proneness of the clergy to hearty feeding, I possibly used a rather strong expression in saying hearty feeders. It is not so much how much they eat as that they eat out of portion to the exercise they get and their ability to dispose of their food intake.

Schroetter has objected to the term idiopathic, claiming that this should be "secondary," but Fraentzel replies that if these

cases were always secondary the objection would hold, but in fact they are not always secondary to some condition that can be observed elsewhere. This reply relates to those cases in which high tension is due to great bodily exertion, as in soldiers who undertake long and fatiguing marches, and mountain climbers, and also in some instances laborers, although in the laboring class the abuse of alcohol and excesses of other kinds are apt to complicate these cases with chronic arterial changes. I classified this case with those considered by Fraentzel in which the heart changes gradually appear simply in consequence of vascular tension and not of arterial or renal disease. The cases of acute degeneration from fevers, diphtheria and nervous diseases of the heart are those which Fraentzel classifies as diseased hearts straining against normal arterial tension, whereas, in this class of cases there is an abnormal arterial tension with a comparatively sound heart. I viewed this case as one in which there was not marked degeneration of the heart, but it had given out for some cause or other. The microscopic examination, however, corrected my diagnosis and showed that although there was abnormal arterial tension there was also disease of the heart muscle, and this case was one of diseased heart muscle struggling against abnormal arterial tension.

Dr. Stehman propounds the question as to how one can exclude cases of fatty overgrowth. It is a fact that fatty overgrowth is not found post-mortem so frequently in corpulent individuals as we were formerly led to conclude by the writings of Walshe and others. We find perhaps some evidence of fatty deposit on the heart; I do not know anything about the statistics with reference to it, but I know the condition of a great layer of fatty deposit upon the heart beneath the pericardium is as a matter of post-mortem record comparatively rare, so rare that I think we can in most instances when we find corpulent individuals with weak hearts assume that the condition is one of degeneration, perhaps of the heart muscle with enlargement of the heart, and not of fatty overgrowth. If the overgrowth were so great as to cause an increase in the area of precordial dullness, the heart muscle would be greatly embarrassed, the heart sounds would be extremely feeble because intercepted by a layer of fat the same as if transmitted through a pericardial effusion and we could make a diagnosis with comparative certainty.

Dr. Thomas also asked with reference to the effect on the heart of the physical and mental effort to which clergymen are subjected by preaching. I think the strain in those cases is brought

to bear more upon the right ventricle. In my notes of this case I have a record of a foot race, a friendly contest, on the part of this gentleman two years prior to his death, and although he manifested no symptoms from that time on until six weeks before his death, I am inclined to attribute more or less etiological influence to that effort.

Dr. J. M. PATTON: I would like to ask Dr. Babcock if in the light of his diagnosis there was increased muscular tension, and if post-mortem examination showed sclerosis of the vessel, he would not regard this as a case coming under the objection of Schroetter or did he regard the degeneration of the heart as far as shown, responsible for the cardiac condition?

Dr. BABCOCK. I did not regard this as secondary because I took the view that this was a case of idiopathic enlargement without degenerative changes in the kidneys or arteries that I could recognize since the urinary analysis made by Dr. Lyman was negative, and I could not determine any sclerosis of any of the accessible arteries. I spoke of the rejoinder urged by Fraentzel that they are not always secondary to pathological changes elsewhere, and for that reason Schroetter's objection does not always hold. In this instance, however, Schroetter's argument is applicable and accordingly it was secondary and not idiopathic, except in so far as Fraentzel calls all such cases idiopathic.

PRESENTATIONS OF SPECIMENS OF FOREIGN BODY IN THE VITREOUS;
CHOROIDITIS, WITH DESTRUCTION OF THE VITREOUS; A GLAUCO-
MATOUS EYE.

Dr. J. ELLIOTT COLBURN: I have here three specimens that are interesting from the practical history they give, indicating the necessity for early diagnosis and early operation and the dangers that come from recognizing the trouble too late.

The first specimen is an eye with the head of a tack lodged in it and retained there for three years. The young man who was unfortunate enough to receive it being under the supposition that it had not entered the eye, but had simply wounded the cornea. The eye passed through a slight inflammatory stage immediately following the injury, and about a year and a half subsequently there began to be an irritable condition of the fellow eye. Within seven months the irritable condition had become one of inflammation, the vision having fallen to $\frac{2}{200}$; there was constant pericorneal congestion; and at the time I saw him it was a question whether we would operate or not, fearing that the operation

of enucleation might aggravate the symptoms already set up in the fellow eye, and we receive the blame for the blindness, that we knew might come sooner or later. The question was fully debated, and the patient was made to understand the possibilities and dangers.

The tack had passed through the eyeball and lodged in the sclera on the opposite side. You will see it presenting almost out of the sclera. It did not pass through the lens, but entered the sclera at the nasal side of the cornea, passed through and lodged in the sclerotic on the opposite side of the entrance of the optic nerve.

At the time I saw the patient the region where the head of the tack lay was covered with plastic matter; it would indicate that the sclera, the retina, and the choroid had been wounded in that region, and that the foreign body had lodged there. In the event of a foreign body entering the eye and lodging anywhere within the eyeball we are liable to have an irritable condition set up in the fellow eye. The primary eye may not become seriously inflamed, and no degenerative process take place, but it is likely to keep up a constant irritation that will ultimately result in disease of the fellow eye. Sometimes the date of irritation of the fellow eye being put off even as long as twenty-five years. In one case that I have in mind there is a history of sixteen years intervening between the time of the reception of the injury and the sympathetic disease in the opposite eye. There are on record cases of three or four days only intervening between the time of the injury and the symptoms of disease occurring in the fellow eye. This makes us guarded about the advice to retain an eye that has been the recipient of a foreign body unless it is promptly removed, and irritation does not follow injury or operation.

Not only will foreign bodies produce sympathetic disease, but injuries to the ciliary body alone are likely to produce irritation in the fellow eye and ultimate sympathetic disturbance, so that we are always solicitous if the ciliary region is simply wounded.

Enucleation was made in this case, and in four weeks the vision had fallen to 10-200, but in about four weeks longer, or eight weeks after the operation, the vision improved; the cloudiness of the vitreous of the fellow eye had cleared up and vision was again 20-200; later, about 20-40. Specimen No. 2: A little girl, nine years of age, came to my clinic with one of those hard glaucomat-

ous feeling eyes, the anterior chamber being almost obliterated, the iris adherent to the posterior wall of the cornea, the eye being perfectly sightless, not responding even to the sensation of light. The sclera was congested, and the patient suffered periodic relapse of severe pain. The patient had been to all the clinics, and had consulted many of the specialists, and received the uniform advice that it was best to have the eye enucleated, because the fellow eye was beginning to show signs of irritation, that is, she was having difficulty of accommodation, little spells of flushing of the eye and of intense photophobia, and of lachrymation. I advised enucleation, as the others had done, and enucleated the eye about two weeks ago. Upon section I found that the choroid had been completely detached from the sclerotic, that the post-choroidal space had been filled with watery infiltration, with pigment matter, and that it contained absolutely no vitreous. The choroid, retina and hyaline membrane were attached directly to the posterior wall of the lens. In going back with the mother over the early history of the child, I found that when she was about two years old she had been playing with a piece of wire, and cried out suddenly. The mother picked her up and noticed that her eyes were red, but thought nothing of it at the time. For a week or two following this supposed injury the child cried considerably and her eye was flushed. I think it probable that at that time the wire entered the eye. The eye would ultimately have become atrophic, as is the history of nearly all of that class of cases. This patient recovered without complications.

Specimen No. 3. This case was to me especially interesting. This eye was possessed by a gentleman sixty-two years of age, who had been spending a day in sight-seeing, and he returned home greatly fatigued. That night he was taken with severe pain in the left eye, and on the following morning found his vision was somewhat lowered. He consulted a physician, who prescribed atropine, which gave immediate relief; he used it for a few days, receiving also some internal medication, and for a few weeks was comparatively free from pain. With return of vision he again used his eye excessively, spending a day looking around the incomplete buildings of the Fair grounds, and when he returned home he had another attack of severe pain. The remedies he had used before were again employed, and gave complete relief. The next day he consulted a gentleman who advised discontinuance of the atropine, and made a diagnosis of glaucoma, advising immediate operation, iridectomy, the chief remedy for glaucoma, and the use of eserine

until iridectomy could be made. Almost coincident with the use eserine the eye began to be excessively painful. The pain increasing, a mutual acquaintance brought him to me for examination. I found the eye exceedingly tense, and the cornea lowered in sensation, two of the chief characteristics of glaucoma. One thing made it appear atypic, and that was the great depth of the anterior chamber, and the aqueous was clouded by flocculent matter which had precipitated, filling the lower part of the anterior chamber.

I was puzzled somewhat at the appearance of the eye and the history, but decided that we must be dealing with a serous iritis and prescribed accordingly. Atropine was used, and hot applications; for two months he had complete relief, when the nagging pain returned, with increased tension. I made a section of the cornea, carrying the section well into the sclera, which gave relief for nearly two months, when the pain returned again. The old gentleman had been deprived of his reading and usual occupations and he consented to enucleation as the best way of getting rid of the offending member. In the meantime the fellow eye had begun to show the usual signs of irritation. This is properly a glaucomatous eye without its being a case of true glaucoma. The condition in this case was not due to under drainage, as is supposed to be the case in classical glaucoma, but to over secretion in the anterior chamber. The result from increasing tension is the same, and unless the progress of the disease is promptly stayed the outcome is fully as disastrous. The ordinary remedies for glaucoma would not have been indicated, the iridectomy and eserine. One remedy for this condition would be a section made well down in the sclera for the purpose of drainage and to relieve the congestion, but it has been my experience with this class of cases that enucleation is the better way to rid the patient of the dangerous member because the other eye is constantly becoming involved in a serous iritis.

The fellow eye continued low in vision for some days, but gradually improved to normal. In this case the cause of the inflammatory condition was somewhat obscure till we refracted the fellow eye when we found a compound hypermetropic astigmatism of +1.50. cy. +75. +90, and I am of the opinion that the error was the predisposing cause of the cyclitis and the excessive fatigue was the exciting cause.

I desire to call attention to the constant danger to the second eye from any form of cyclitis, traumatic or nontraumatic, as illustrated by the four cases recited. Also to the danger to which all hyperopes are subjecting themselves, after they attain the presby-

otic age if they demand too much of their unaided eyes, for not only may cyclitis and general uveitis follow such overstrain, but it is quite well established that a large percentage of cases of true glaucoma and lenticular cataracts, occur in eyes that have too great a static refraction.

Dr. EMANUEL SENN reported a case of External Injury of the Forearm with the Regeneration of Lacerated Tendons by the Suture at a Distance.

PRESENTATION OF NEW NASAL SNARE.

Dr. H. M. THOMAS: The snare which I present is designed to combine certain new features to facilitate particularly the removal of nasal polypi. The average snare in my hands has been a source of a great deal of trouble from the fact that it was unduly large, was unusually very coarse in construction and did not permit of easy attachment for the purpose of securing the easy removal of nasal polypi. Then, again, the ordinary snare usually draws the wire from only one side, so that the facility with which cutting can be done is slow and correspondingly painful.

In constructing this snare I have added what appears to me to be an improvement, in the form of a gold tip which fits over the end of the snare and enclosed within which are two small steel blades, so that whatever structure you wish to remove from within the nasal passages, you get a double cutting surface, one that cuts from the inner side of the wire and one from the outer side. The result of this is in my experience that the wire attaches itself more closely to the polypi and is carried up more nearly to the roots and hence they are severed from their point of attachment. It appears to me that this little contrivance has considerable merit from that double combination. Then again, the snare is capable of being used for galvano cautery work. By attaching the galvano cautery wires at the lower point you have a very delicate attachment through which the current can be transmitted to the platinum wire, and you can operate without hemorrhage. If anything harder than polypi are engaged in the snare, in the back of the handle is a small thumb screw which can be tightened and permit retaining within the snare of any amount you wish; then when ready to proceed it can be loosened and the wire drawn down taut.

I think this little instrument has some merit; first, from its being very light; second, from the fact that it has a double cutting surface, and third, it combines the galvano cautery application with it.

On motion, the society adjourned.

JOHN M. DODSON, Secy.

News Items.

Dr. DILLON BROWN is now editor of the Archives of Pediatrics.

IOWA'S NEW HOSPITAL FOR THE INSANE will probably be located at Storm Lake.

Dr. E. T. EDGERLY, of 5031 Lake Avenue, has gone to Europe for a few months.

SURGEON WOODWARD has been again detailed as cholera inspector at Hamburg.

AN INDIAN MEDICAL CONGRESS, the first of its kind, is to be held in Calcutta in January, 1895.

SWISS MIDWIVES recently met at Zurich and took steps to found a national society of midwives.

Dr. RICHARD DEWEY has been elected Vice President of the American Medico-Psychological Association.

Dr. JULIUS UFFELMANN, Professor of hygiene in the University of Rostock, died February 17, at the age of fifty-eight.

Dr. A. L. CLARKE has removed from 297 Forty-third Street to 460 East Sixty-third Street. Telephone, Oakland 483.

Prof. MIKULICZ, of Breslau, will probably succeed the late Prof. Billroth in the chair of Clinical Surgery, at Vienna.

Dr. FRANKLIN H. MARTIN has been elected chairman of the Gynecological Section of the American Medical Association.

Dr. GUSTAV FUTTERER has moved to suite 1014-1016 Venetian building, 34 Washington Street. Office hours, 11 A. M. to 2 P. M.

A SCHOLARSHIP has been founded in Harvard University Medical School, in memory of the late Dr. Charles P. Strong, of Boston.

Dr. B. M. BEHRENS intends to travel for the purpose of recovering his health, and will probably return the latter part of October.

A COLONY FOR EPILEPTICS is now assured to the State of New York by the signature of Governor Flower to the bill incorporating the same.

A SUMMER SCHOOL of neurology and psychiatry has been organized at the Illinois Eastern Hospital for the Insane at Kankakee.

TO RENT: Office hours in the Schiller Theater Building. Good chance for surgeon, ear, nose and throat specialist or general practitioner. Apply to Dr. Kreissl, suite 1014.

Dr. H. NEWBERRY HALL, after six weeks' association with Dr. C. J. Blake, of Boston, has returned to Chicago and will in future devote himself exclusively to diseases of the ear.

Dr. WILLIAM LEISHMAN, Professor of Midwifery in the University of Glasgow, well known in this country as the author of the System of Midwifery which bears his name, is dead.

Dr. ISAAC A. ABT has returned to Chicago after a European trip which included a year of study in Vienna, and four months in Berlin, and has opened an office at 3505 Indiana Avenue.

THE ST. LUKE'S HOSPITAL has organized a department of neurology and Drs. Archibald Church and Elbert Wing have been elected by the board of trustees as Neurologists to the institution.

Dr. WILLIAM STEARNS, of the house staff, at St. Luke's Hospital, has been appointed a member of the medical staff at the Illinois Eastern Hospital for the Insane, at Kankakee, from April 1, 1894.

THE NEW YORK STATE MEDICAL REPORTER made its first appearance, and a very creditable appearance, in March. It is to be a monthly journal of medical progress, is edited by Dr. H. Bronson Gee, and published in Rochester, N. Y.

THE CHICAGO ACADEMY OF MEDICINE tendered a complimentary banquet to Dr. J. B. Murphy, on his return from Europe, on the evening of May 18, at the Union League Club in this city. A most enjoyable and enthusiastic evening was spent.

Prof. LUTAUD, of Paris, France, was given a complimentary luncheon at the Union League Club on June 4. Among those present were Drs. Dudley, Cleveland, Earle, Murphy, Fenger, Suchon, of New Orleans, Hollister, Church, Watkins and Sanger Brown.

CHINA'S FIRST MEDICAL COLLEGE was recently opened with formal ceremonies at Tientsin. The establishment of the school by the Chinese government is largely due to the efforts of the

Viceroy and his wife, who caused the necessary buildings to be erected.

AND NOW COMES *Die Deutsch-Amerikanische Monatsschrift*, whose object is "the fraternal unification of all physicians and surgeons of the German tongue in the United States," and which, possibly for that reason of peace and good will, is published in St. Louis.

THE MEDICO-LEGAL SOCIETY OF CHICAGO, at its annual meeting on June 2, elected officers as follows: President, Dr. James Burry; First Vice President, Dr. C. E. Wescott; Second Vice President, Dr. Sanger Brown; Treasurer, Dr. Joseph Mattison; Secretary, Dr. Archibald Church.

CHOLERA INSURANCE FOR PHYSICIANS in Viatka, Russia, has been inaugurated, whereby the family of a physician who dies from cholera will receive the interest on from 5,000 to 8,000 rubles; the family of a surgeon will under like circumstances receive the interest on 1,000 rubles.

Dr. A. P. OHLMACHER has resigned his connection with the College of Physicians and Surgeons and the Chicago Polyclinic to accept the chair of pathology and bacteriology in the medical department of the University of Wooster, at Cleveland, Ohio, where he will move on July 1.

THE BRITISH MEDICAL ASSOCIATION will meet at Bristol, on July 31, and August 1, 2 and 3. Dr. E. Long will preside. The address in Medicine will be delivered by Dr. T. Grainger Stewart, of Edinburgh; the address in Surgery, by J. Greig Smith, and the address in Public Medicine, by Sir Charles Cameron.

Dr. EMORY LANPHEAR, for many years editor of the *Kansas City Medical Index*, has resigned the chair of Operative Surgery and Clinical Surgery in the Kansas City Medical College, and has removed to St. Louis. He makes the change in order to become Professor of Surgery in the St. Louis College of Physicians and Surgeons.

Dr. C. H. WHITMAN, who went to San Francisco as a delegate to the American Medical Association, will take up his permanent residence in Los Angeles where he will devote his attention mainly to the surgical diseases of women. Dr. Whitman leaves behind him a fine reputation in the profession and will be regretted by a large circle of medical and lay friends, and will carry with him the best wishes of all who know him.

DR. J. J. LARKIN has removed his residence to 466 Ashland Boulevard. Telephone, West 789.

SMALLPOX IN CHICAGO is decreasing. During the first seven days of May 162 cases were reported; during the first week of June, only 50 cases. At present there are 268 patients in the smallpox hospital. The deaths from smallpox for May numbered 290. Over 500,000 vaccinations were made during the month. The entire city has been gone over once, and a portion twice. Much of the opposition to vaccination, which has been so strong in the foreign quarters of the city, has been overcome by the courage and tact of the physicians in the Health Department.

THE LA SALLE COUNTY MEDICAL SOCIETY, at its meeting at Ottawa, April 24th, after a lengthy preamble resolved to call the attention of Chicago Hospitals to the abuse existing, in that patients from the country well able to pay fees were admitted gratis, and intimating that many of their patients are diverted from them by college professors, who in turn are not paid. They ask the institutions and Chicago Physicians and surgeons to communicate with local practitioners to learn the financial standing of applicants, and propose to take further action if their wishes are not complied with. There is a just cause for complaint on both sides of this question. Some Chicago professors also will easily recall that patients who are well able to pay are sent to them at their clinics, by country practitioners, for a diagnosis, without price.

PAMPHLETS RECEIVED.

Lecture by Prof. Pinckney Welsh, M. D. *St. Louis Med. Era.*

The Cause and Cure of Malignancy. By William Thornton, Boston, Mass.

The Case of Renal Calculus. By J. H. Hoelscher, M. D. CHICAGO MEDICAL RECORDER, March 1894.

The Therapeutic Value of Weak Lenses. By F. C. Hotz, M. D. *Journ. Am. Med. Ass'n.*, March 31, 1894.

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THE OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY
OF CHICAGO.

THE CHICAGO MEDICAL RECORDER

JULY, 1894.

Original Articles.

VACCINATION.

By WM. E. QUINE, M. D., CHICAGO.

PRESIDENT ILLINOIS STATE BOARD OF HEALTH; PROFESSOR PRACTICE OF MEDICINE AND
CLINICAL MEDICINE, COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO, AND
PRESIDENT OF THE FACULTY.

Vaccination was introduced to the attention of the medical profession by Edward Jenner in 1790 as the result of twenty years of investigation.

During the century preceding, according to the estimates of our most authoritative statisticians, smallpox, 'The most terrible of all the ministers of death,' destroyed, in Europe alone, fifty million human lives.

Think of it! Five hundred thousand deaths every year from the most loathsome pestilence known to man; thirteen hundred deaths every day; nearly a death every minute for a hundred years.

If it be true, as is believed by enlightened people the world over, that universal vaccination and revaccination, efficiently done, can put an end to the desolation and horror of epidemics of smallpox and possibly eradicate the disease altogether, it would appear that the discoverer of vaccination is the greatest benefactor that mankind has known.

Alexander was great. Cæsar was great. Hannibal was great. Napoleon was great. They were all great as destroyers. But what have they done; what have all the warriors and conquerors of earth done, in comparison with this one member of the medical profession, in the direction of adding to the sum total of human happiness and human life?

Address before the Illinois State Medical Society, May, 1894.

Is it too much to say that widespread epidemics of smallpox are now entirely unnecessary in civilized lands? Is it too much to say that such epidemics are always the result of negligence, that they are always preventable, and that their occurrence is a crime against civilization, for which the medical profession is largely responsible? Take a glimpse of what vaccination has already accomplished and then try to imagine the results of its universal, systematic, and thorough employment by physicians whose highest conceptions of duty and most serious efforts relate to the prevention of disease.

During the epidemic in Marseilles in 1804, eight thousand unvaccinated citizens furnished four thousand cases of smallpox and thirty thousand vaccinated persons furnished only two thousand cases.

During the same year six negro children were vaccinated and they shipped aboard a vessel bound for one of the Seychelle Islands to perform quarantine service for smallpox. For three months the children were exposed to the contagion in every conceivable way. They slept under the same blankets with the sick, and in contact with their pustules. They were inoculated again and again with the virus taken from those pustules, and yet they continued in undisturbed health every minute of the time.

During the Franco-German war of 1870-71, the number of deaths from smallpox in the vaccinated German army was two hundred and sixty-one, and in the unvaccinated French army it was twenty-three thousand four hundred and sixty-nine.

In Berlin in the year 1872, the mortality of the disease was two hundred and forty-three per one hundred thousand population, and the year after it was two hundred and sixty-two. Thereupon vaccination during the first year of life and revaccination at the age of twelve years was made compulsory by law, and with the effect that in the year 1875 the death rate was lowered to thirty-six per one hundred thousand inhabitants; the next year it was lowered to thirty-one; the next to three, and so on through later years with an average annual mortality of one and seven-tenths per one hundred thousand people. During the year 1890 only fifty-eight cases occurred in the whole German Empire, or one and eighteen-hundredths cases to each million of population.

A village in Leicestershire, England, of thirteen hundred inhabitants was visited by the pestilence in 1872. All but two of the inhabitants were efficiently vaccinated and escaped the disease; whereas the two unvaccinated persons died of it.

The late Dr. J. H. Rauch, for many years Secretary of our State Board of Health, has shown that in the Illinois epidemic of 1881-83, the mortality rate of the vaccinated was approximately six per cent and of the unvaccinated it was forty-nine per cent.

Corbally has demonstrated that, in the Sheffield, England, epidemic of 1887-88, vaccinated children were, as compared with the unvaccinated, twenty times less liable to attack from smallpox, and twenty-four times less liable to die when attacked. That is to say, the vaccinated children had, as compared with the unvaccinated, four hundred and eighty fold security against death from smallpox.

In the Halifax, England, epidemic of 1892-93 the death rate from smallpox among vaccinated persons was one and eight-tenths per cent, and among the unvaccinated it was nearly forty-one per cent. No case occurred in a vaccinated child under five years of age, and in the Leicester epidemic of 1893, no case occurred in a vaccinated child under ten years of age.

From the records of five thousand cases treated in the Municipal Hospital of Philadelphia, according to W. M. Welch, in the *New York Medical Journal*, March, 1894, it appears that the death rate in that institution in post-vaccinal cases, and all in which there had been an attempt at vaccination are included, was 16.26 per cent; and the death rate in nonvaccinal cases was 58.38 per cent.

Seventy-three per cent of the cases in unvaccinated infants under one year of age ended in death, and no fatal case occurred among vaccinated infants of the same age. Between the ages of one and seven years the mortality of post-vaccinal cases was 5.7 per cent, and of nonvaccinal cases it was 51.48 per cent.

In Chicago only seventeen cases of smallpox have occurred in the last fifteen years among the well vaccinated public school children of that city, whose average number exceeded two hundred thousand.

The foregoing are a few illustrations of the utility of vaccination. I could easily occupy your time for hours with statistical quotations from standard authors, for thousands of pages of authentic medical literature are teeming with illustrations of a like kind; but longer continuance on this line of exposition would be wearisome, and it could serve no other purpose than that of emphasizing what has already been demonstrated. Physicians everywhere have encountered striking examples of similar bearing; and, as individual experiences may make a more intelligible impression on some minds than an aggregation of figures, I make free to include a few of them.

From numerous memoranda furnished by my friend, Dr. A. R. Reynolds, Health Commissioner of Chicago, I select the following at random :

1. A mild case of smallpox ended in recovery. In the family were five vaccinated persons and five unvaccinated. Every one of the vaccinated persons escaped, and every one of the unvaccinated contracted the disease.

2. A nonvaccinated child five years of age developed the disease. The family included eight other children and the parents. Five were vaccinated, and six were not. Of those vaccinated one contracted mild varioloid, the others escaping; and of the non-vaccinated every one developed confluent smallpox.

3. A case of smallpox in Pullman, regarded by the attending physician as one of chickenpox, ended in recovery. About twenty-five persons were exposed, all of whom except three were vaccinated. These three contracted the disorder and two of them died. Of those tardily vaccinated one died of smallpox and three recovered from varioloid. The one who died was the doctor who made the mistake in diagnosis.

If I were addressing an exclusively medical audience, I should feel ashamed of appearing to think it necessary to cite proofs of the efficiency of vaccination as a life-saving device, since nothing in the whole domain of human experience is more clearly and strongly established than this. Intelligent physicians everywhere are well aware that liability to smallpox is enormously lessened by vaccination, as is liability to death when smallpox actually appears.

When shall vaccination be done? In view of this fact it would seem that the protective influence of vaccination cannot be invoked too early in life. Smallpox is a disease of infancy and childhood. Children are more liable to contract it than mature adults, and when they do contract it they are more liable to die; hence there is imperative reason why they should be vaccinated soon after birth. In some countries this is made compulsory by law. Physicians the world over urge that vaccination be done during the first year of life, and when smallpox is prevalent they demand that it be done within the first three months of life. If there be certainty, or even strong probability of the exposure of the newborn to the contagion, it should be thoroughly vaccinated immediately after its birth.

How soon after vaccination does protection from smallpox begin and when does it become perfect? This is a very important

question, for it frequently happens during an epidemic of smallpox that an exposed and susceptible person has the opportunity to watch, in his own life, a race between the protective power of vaccine lymph, tardily inoculated, and the infection of pestilence which had gained entrance to his body. Protection begins about the fourth day after efficient vaccination and is perfect on the eighth or ninth day. On the other hand, the incubative period of smallpox is ten or twelve days, say ten days. By "incubative period" is meant the time intervening between exposure to contagion and the appearance in the individual of the evidences of the resulting disease. The period is not uniform as the poison or contagion may linger in the clothing for some time after the exposure occurred and its absorption be delayed. It is obviously the part of prudence to regard the minimum period of incubation, ten days, as the period likely to obtain in any given case. Accepting this as a fact and remembering that the protective influence of vaccination begins on the fourth day and is perfect on the eighth, it follows that a person may be protected from smallpox even a couple of days after he had been exposed to it by efficient vaccine inoculation. If vaccination be well done within forty-eight hours after exposure, the exposure proves harmless; if it be delayed till seventy-two hours, the victim is likely to develop varioloid; and if it be delayed till ninety-six hours it makes little or no impression on the consequences of that exposure. (Trousseau.)

How long does the protective power of thorough vaccination last? The term is different in different individuals. Many can be successfully vaccinated but once in a lifetime, and others can be successfully vaccinated again and again. In the great majority of cases one attack of smallpox confers immunity for the remainder of life; but there are individuals who have the disease again and again and even die of a second or a third attack. The degree of protection against smallpox conferred by vaccination gradually diminishes, in most persons, until approximately the original liability to the disease is finally reestablished. One could not reasonably expect greater protection from one attack of cow smallpox, *i. e.*, vaccinia or vaccination, than is conferred by a previous attack of human smallpox. And since a person may have a second or a third attack of human smallpox, it is not surprising that he may die of human smallpox after he has been thoroughly inoculated with the cow smallpox, and exhibited the characteristic manifestations of that disease. The longer the interval since efficient vaccination, the

less is the protection conferred by it. We have already learned that it is extremely rare for a well vaccinated child under ten years of age to develop smallpox, and that when the disease does appear it is almost invariably of the modified and mild type known as varioloid. However, it is well known and important to keep in mind that any severe sickness, such as typhoid fever, is liable to greatly impair the protective influence of vaccination even to the extent of destroying it altogether. It is maintained by some of the most authoritative writers of the day that there is not a single case of smallpox of authentic record, as having occurred within a period of seven years after a typically successful vaccination. This conclusion does not preclude the propriety of universal revaccination every time the smallpox becomes obtrusively prevalent. The problem that confronts us is, not how few vaccinations can be gotten along with, but how to employ the benign measure so as to escape liability to smallpox with infallible certainty.

Vaccination and revaccination, efficiently and frequently done, is the only known means of securing absolute immunity ; and if the practice of efficient vaccination and revaccination ever become universal, then human smallpox will become a thing of tradition and history.

Every person should be carefully and thoroughly vaccinated at least three times; during the first year of life, about the time of puberty, and again between the ages of twenty and thirty years. If this be done and well done, the individual will have good protection for life ; but let me repeat that another vaccination is always proper and on the side of prudence, whenever smallpox becomes extensively prevalent.

Abortive and worthless vaccination. Vaccine lymph is a very perishable substance and rapidly deteriorates on exposure to a warm atmosphere. This is particularly true of the bovine lymph, furnished on the bone "points" now in universal use. The lymph, or "virus" may be of good quality when purchased, but after it has been carried in the vest pocket a few days it is liable to be worthless. Formerly, propagators and dealers took the pains to protect the "points" from the air by a covering of cotton batting and rubber tissue ; but this is rarely, if ever, done now. The absence of reasonable evidences of care in the collection and preservation of the lymph is in pitiful contrast with the magnitude of the interests involved. The only propagators in this country who take any pains at all to protect the "points" from the atmosphere and from

unnecessary handling, hence, from liability to contamination, are those of the "National Vaccine Establishment" of the District of Columbia.

Moreover, it is asserted by high authority (Pepper) that, in times of active demand for virus, propagators have been guilty of applying irritants to the sores on the udder of the heifer with a view to increasing the product. The seropurulent discharge resulting from such applications was used to coat the bone "points," and the latter were then foisted upon the profession as pure bovine virus. And this is not all. I feel that certain dealers sell, at times, points that have been prepared by dipping the pieces of bone in an aqueous mixture of bovine scabs. The granular and dirty appearance of such "points" is plain enough to evoke instant attention and condemnation. In view of these considerations, is it difficult to understand why bovine lymph is unreliable and why, now and then, unpleasant and unnecessary complications attend the use of it? If bovine lymph were collected and preserved with such admirable care as obtained with humanized lymph when every doctor propagated and preserved his own supply, there would be greater uniformity of effect, and the reputation of vaccination would be less frequently marred by "accidents." Every "point" of bovine lymph is an experiment. A susceptible person may be inoculated repeatedly without any effect whatever, and particularly without the effect desired. Commissioner Reynolds informs me of a person who had been unsuccessfully vaccinated thirteen times. The fourteenth attempt yielded a perfectly typical result. Can you not understand, then, how a person who has been "vaccinated" may readily contract smallpox when exposed to it? It is easy to comprehend the "insusceptibility," to vaccine lymph which many persons claim. Apparent "insusceptibility," when not due to a previous attack of smallpox, or to a previous genuine vaccination, is due, in probably every instance, to worthless virus, or to the careless and incompetent use of good virus. Carelessness on the part of the doctor is responsible for much damage to the effectiveness and reputation of vaccination. The operation is so simple and familiar, and so generally successful and free from unpleasant intrusions of any kind, that it is habitually performed in a perfunctory or indifferent manner. In many instances the doctor does not learn whether it has been successful or not. In many instances he certifies that a school child is well protected against smallpox, without having examined the child at all or knowing anything about its vaccinal condition. In

some instances a person is practicing as a physician who does not know a normal vaccine sore from a spurious one, a typical scar from an atypical one, success from failure.

In order that vaccination be effective it is essential that it be normal in every respect. When the arm gets to be enormously swollen, and very painful, and the patient very ill in consequence; or when a slough has formed and, separating, leaves a large suppurating ulcer which heals slowly and makes an ugly scar, it is commonly assumed by the uninitiated that the vaccine virus has "taken" with admirable vigor, and that the fortunate individual is exceptionally well protected; whereas, in fact, the vaccination is spurious and may confer no protection whatever. The process of development of the vaccine sore and the scar following, constitute the basis of a rational opinion as to the efficacy of the vaccination. A typical scar may be accepted as proof of good vaccination. Such a scar may preserve its characteristics throughout life, or it may fade away. It is often impossible, after the lapse of years, to tell from the appearance of the scars whether the vaccination had been a success or a failure. Thousands of persons who rejoice in the possession of large and deep scars have no protection at all against smallpox; and if they contract the disease and survive it, they are found on exhibition ever after as living proofs of the inutility of vaccination. But some of them do not survive. Nearly half of them die. Are we of the medical profession guiltless in such cases? No sir. We are guilty of trifling with human life and of bringing into disrepute by reason of our carelessness and lack of appreciation of the magnitude of the issues, one of the most beneficent and harmless of the measures of protection vouchsafed to our race. Every doctor is perfectly satisfied with the completeness of his knowledge of the subject, and yet how many would be able to sustain themselves creditably in debate with a well-informed anti-vaccinationist? We are so well satisfied with what we know that many of us never read a page on the subject in all our lives. And yet what is there in medicine or surgery that has the life-saving power of vaccination? Is this an unimportant measure, or is it one of the finest applications of biological science? Our young graduates have been thoroughly instructed in appendicitis and in intestinal anastomosis, but they do not know a typical vaccine sore from an example of pemphigus. Fortunately, however, the epidemic of appendicitis is on the decline and our teachers may be able to find time to say a few words about vaccination.

It is not sufficient that a person be vaccinated; he must be

thoroughly vaccinated. It appears highly probable from the statistics of Marson, Simon, Trousseau and Welch, that one point of vaccine inoculation does not confer as reliable protection upon the individual as do two or more points of inoculation. In view of the unreliability of the bone "points" of bovine virus in common use, the imperative necessity of using two or more of them on each person vaccinated is obvious. In Europe vaccination is done with much greater thoroughness than is the rule in this country. There they vaccinize. We vaccinate. They take pains to saturate. We do not. When they get through we find three or four scars on each arm. We are through when the patient has two scars. In view of these various facts is it surprising that we have an outbreak of smallpox every few years? The subsidence of an epidemic lulls us into the negligence of fancied security; spurious vaccinations mislead; the immunity conferred by genuine vaccination dwindles away; children are not vaccinated till they reach the school age, and many are not vaccinated then; a case of smallpox is imported, and lo! another epidemic appears. How many lessons of this kind are necessary to arouse the medical profession to a proper sense of duty, and the community at large to a common sense appreciation of the demands of self-protection? The experience of the world has demonstrated again and again with terrible impressiveness that so long as unvaccinated children are allowed to accumulate, and so long as people continue to neglect renewal of immunity by revaccination, epidemics of smallpox are certain to make their appearance. Such epidemics are a hideous disgrace to civilization. The disease is preventable. It is eradicable. And yet I question if a particle of progress has been made in the direction of eradicating it from our own country during the past quarter of a century. We do just as our predecessors did—vaccinate furiously when smallpox becomes, or threatens to become, epidemic, and then neglect vaccination till the next epidemic arrives. Carelessness is growing and the results of it are multiplying. In England and Wales where there is a law requiring vaccination in the first year of life the number of unvaccinated children over one year of age has been steadily increasing of late years. (*British Medical Journal*.)

Dangers and complications. It is estimated by competent authority that 22,000,000 people are vaccinated annually. (Pepper.) The course of a normal vaccination extends over a period of three years and every derangement of health occurring within that time is likely to be ascribed to impure lymphs. It is obvious

that among 22,000,000 people a great deal of sickness is certain to occur every day quite independently of vaccination. But it is not denied that vaccination is responsible for some of it. In view of what has already been said about errors, if that is the right word to use, in the collection and preservation of virus, some admissions at the present time would have not only the merit of truth, but the charm of logical continuity. My friend, Dr. Gehrmann, of Commissioner Reynolds' staff, has examined a great many "points" microscopically and found pus and pus producing microbes, staphylococci, on nearly every one of them, to say nothing of microbes of other kinds from atmospheric contamination.

Erysipelas. This is the pest of vaccination and the cause of the only fatalities that have come within the range of my investigation. When it appears within twenty-four or forty-eight hours after the inoculation and especially if the vaccinal abrasion was made with the bone point, it is almost certain that the erysipelas is due to streptococcus infection of the "point;" but if the appearance of the complication be delayed much longer than twenty-four hours it is probably caused by infection of the abrasion from other sources. The skin, clothing and atmosphere are always contaminated with pyogenic microbes, and various other kinds as well, under ordinary circumstances of city life; but there is no doubt in my mind that erysipelas results much more frequently from the use of carelessly collected and distributed bovine virus than it did in years gone by, from the use of carefully collected and preserved humanized lymph. But the fatal objection to the use of humanized lymph, its liability to contamination with syphilitic virus, does not apply to the product of the heifer, since the human species enjoys, no, it does not enjoy but it possesses practical monopoly of the venereal diseases, a gonococcus and a coccogonus trust. With the single exception of syphilis, vaccinal complications are more common to-day, I believe, than ever. Inflammation of various kinds and degrees, from a simple erythema to an intense phlegmonous process, gangrene, and septico-pyemia, occur in rare instances, but the instances are by no means as rare as they would be if propagators, dealers in and users of bovine virus were alert and actively conscientious in the discharge of duty. A little tenderness and swelling of the axillary glands, rarely advancing to suppuration, now and then mars the course of normal vaccinia, but it is a transitory and unimportant affair. Here and there a physician is heard speaking loosely but positively of the liability to

inoculate tubercle bacilli with bovine lymph. So far as I have been able to learn, tubercular infection has never been known to result from vaccination. Conceivably, nay, undoubtedly, a latent tuberculosis of neighboring lymphatics may be aroused into active progression by the process of normal vaccination, or cow smallpox, as it may be by any other process of local irritation or constitutional derangement. The popular prejudice against vaccination, based on the knowledge that constitutional diseases have been inoculated with contaminated lymph, has stimulated scientists to attempt to cultivate the lymph, or the essential ingredient of it, on artificial media; but without the slightest show of success. Six cases of tetanus are charged against it, to say nothing about skin eruptions of various kinds. The flippant readiness with which *post hoc ergo propter hoc* arguments are used against vaccination by ignorant and prejudiced persons, is well exemplified in the testimony offered during a recent trial in Terre Haute, Ind., where the principal of a public school had been enjoined from enforcing the order of the local board of health to exclude unvaccinated children. A venerable and well-preserved antivaccinationist, seventy years of age, testified that he had been vaccinated sixty-eight years ago and had been struggling against the evil effects of it ever since. Poor old man! True, he never had died of smallpox, and never had had the disease at all; but there is no telling how old he would be now, if he hadn't been vaccinated. Another witness testified that he had been vaccinated on the arm and six years later a running sore made its appearance on his leg. Yes, sir. On his leg! Spread the knowledge of the contaminating and bestializing effects of vaccination and let organized resistance be strengthened!

Every physician of large experience has seen vaccinal complications of various kinds; but it is extremely rare for death or permanent injury to result from them. A fair idea of the actual dangers may be obtained from contemplation of the following facts:

Since January 1, 1894, Health Commissioner Reynolds, of Chicago, has supervised three hundred and twenty thousand vaccinations, and two deaths have been ascribed to the inoculation of impure lymph, or to a complicating infection of some kind.

Dr. O. C. DeWolf, former Health Commissioner of Chicago, reports two hundred and fifty thousand vaccinations without a seriously hurtful consequence of any kind. The late Dr. J. H. Rauch, for many years the efficient and honored Secretary of our State Board of Health, testified before the Royal Vaccination

Commission of England, that during the smallpox epidemic in Illinois, during the years 1882-83, he had conducted and supervised two hundred and fifty thousand vaccinations, and had never seen or known of a more serious complication or sequel than temporary inflammation of the axillary glands, and now and then a sluggish, slowly healing ulcer on the arm. I estimate that the family physicians of Chicago, have vaccinated as many persons, probably, as have been vaccinated by the assistants of the health commissioner. The aggregate number exceeds a million, and there have been two alleged deaths. This represents the dangers of vaccinations when done in reckless haste or carelessness, or, at least, without the slightest pretense of attention to precautionary details. Assuming that such fatalities are unavoidable, but they are not unavoidable, they are the result of criminal carelessness somewhere; and contrast the smallness of the danger with the magnitude of the protection. A recent report of the Local Government Board of England shows that unvaccinated children under ten years of age are twenty times more liable to take smallpox and twenty-two times more liable to die when they do take it, than vaccinated children of the same age. It also shows that unvaccinated persons over ten years of age are five times more liable to take smallpox, and twenty times more liable to die when they do take it, than vaccinated persons of the same age; their life prospects during an epidemic of smallpox being rated as one to fifty-five.

I have said that fatal complications are avoidable. The fact that only two cases of the kind have occurred in over a million vaccinations is proof enough of that. If further proof were needed it would be found in the official governmental reports on vaccination in Germany, which show that in the year 1890, there were 2,485,485 vaccinations in that empire without a single fatality.

Accidents are not an argument against vaccination, but they are an argument against the careless performance of vaccination. There is not a single instance in the whole history of the human family of a person, previously in good health, being killed or seriously injured by inoculation with pure vaccine lymph. Complications result from the use of contaminated lymph or from the use of scabby or purulent substitutes; and the propagators and dealers are largely responsible for the bad results. It must be admitted in this connection, however, that "boné points" may be genuine and pure when they leave the hands of the propagator and that contamination may result from subsequent handling and exposure to

the atmosphere. It must also be admitted that infection of the vaccinal wound may result from the unclean skin and clothing of the individual and from exposure to the atmosphere. We have already learned that pus producing germs are well-nigh everywhere, on apparently clean skin and spotless clothing and in apparently pure air; and they, not to speak of other germs, are liable to invade a vaccinal wound even when some attempt is made to exclude them, and any attempt to exclude them is not made once in a thousand times.

The means of protection against accident are well understood by every intelligent physician. We must have pure lymph to begin with and it must be protected from atmospheric contact and contamination by being kept hermetically sealed until brought into actual use. The skin of the patient and the hands of the doctor must be clean, in the surgical sense, that is, free from microbes. When the vaccinal abrasion is made and the moistened lymph on the bone "point" rubbed into it the abrasion is to be properly covered with an aseptic dressing so as to exclude hurtful germs. These measures will, of course, be regarded by the multitude as somewhat fantastic and unnecessary; and by our local political economists, the barroom politicians, they might be "viewed with alarm." The employment of such measures would make public vaccination five to ten times more expensive than it now is. Assuming that it would take fifteen minutes longer to vaccinate this way than it does the familiar way, and applying the assumption to the 320,000 vaccinations of the Commissioner of Health, what do we find? Quarter of an hour consumed by each person, 80,000 hours by the 320,000 persons. Ten hours a day's work; 8,000 days over twenty-five years. Our city vaccinators get \$900 a year—\$22,500. Now, assuming that every bone point had been perfectly pure, and that every vaccination had been performed aseptically at a total expense of \$22,500, the two lives alleged to have been destroyed by careless methods would have been saved.

If propagators supply us with pure lymph, protected from the air and from unnecessary handling, vaccinal complications will become so rare as to be classed among the curiosities of experience.

Antivaccinationists. Organized resistance to vaccination is much less formidable in our land than it is in England and Wales; and it is interesting to note that much of the opposition discovered in this country comes from people of the lowest grades of intelligence and character who have been compelled to submit to vaccination laws in their native home. "They are agin the government."

But their fantastic and disorganizing conceptions of "personal liberty" do not put them beyond the reach of reason; on the contrary, they are readily responsive to a fair presentation of the subject. A few resist vaccination because they prefer not to be inconvenienced by it. They are "not afraid of smallpox," you know. But the genuine antivaccinationist is the person of incomprehensible mind who goes by the name of "freak." He is, in some instances, a citizen of education, position, refinement, and influence, whose reasoning powers are dominated by a prejudice against vaccination which amounts to positive abhorrence and loathing. He is ready with post hoc arguments, false statements, and factitious statistics, and is a pestiferous nuisance and impediment to sanitary progress. He founds "antivaccination societies." He gets on school boards for no other purpose than to resist vaccination ordinances. He enjoins sanitary officers and makes us feel like vaccinating him with a pistol. He is at the aggressive end of law suits now in various parts of New York, Pennsylvania, Ohio, Indiana, Iowa, Illinois, doubtless in other States. There are people who profess to regard smallpox epidemics as processes of wholesale purification, beneficent visitations of Providence. Vaccination they denounce as bestializing and as being, on the one hand, incapable of any good to the human family, and, on the other, as being responsible for multifarious and hideous ills. They do not know that "vaccinia," "cowpox," "cow smallpox," is human smallpox modified and mitigated by transit through one of the cleanest of God's creatures, whose milk they drink and whose flesh they eat every day.

Compulsory vaccination. It is easy to understand the need of laws, or of adequate provision of some kind, for the protection of communities against the consequences of habitual inattention and of organized opposition to vaccination. Such laws do exist in nearly all the European countries and in Japan, Egypt, and Manitoba; but, in most countries, the laws are not only inherently inadequate, but inefficiently administered as well. In England, the birthplace of vaccination, where the law requires infants to be vaccinated during the first year of life, and makes no provision whatever for revaccination, the number of unvaccinated children under one year of age is steadily increasing from year to year. In Germany the law compels vaccination during the first year of life and again at the age of twelve years; and soldiers, on entering the army, are again vaccinated without reference to their previous vaccinal history. These laws have been in operation since 1875; and

when I say there has not been a death from smallpox in the German army since the year 1874 and that the death rate from this disease for the whole German Empire is only one and seventeen hundredths per each million inhabitants; and when I add that two million four hundred and eighty-five thousand, four hundred and eighty-five vaccinations were performed without a single fatality; there is no need of any other argument.

In this country there are no compulsory laws. In many States there is provision for excluding unvaccinated children from the public schools, and in some of them punishment for noncompliance with the law is prescribed. But there is no law which compels vaccination. In our own State unvaccinated children are denied the privileges of the public schools; but if school directors happen to be antivaccinationists and refuse to enforce the law, there is no provision for compelling them to do it, or for punishing them for not doing it. But the State Board of Health can close the school. These school laws are vigorously resisted in many quarters, and two suits are now pending in Illinois. Such contentions invariably eventuate in the defeat of the enemies of vaccination. In every instance the State Board is willing to relieve local authorities from the responsibility of enforcing the law, and of defending litigation growing out of such enforcement. This is not compulsion for it leaves to everybody the liberty of choosing; but it is more effective than the compulsory laws of several European governments.

A similar force, yet short of actual compulsion, can be brought to bear by State and local sanitary authorities upon employers of labor, and in favor of the vaccination of their employees. Railroad corporations promptly supervise the vaccination of their employees when required to do so by competent authority, for every train can be stopped at the State line for purposes of inspection on the order of such authority. And when it is remembered that in times of widespread pestilence a system of universal inspection and disinfection can be brought to bear upon manufacturers and merchants everywhere, and can even be carried to the extent of destroying their goods in case of refusal to comply with reasonable precautionary demands, it will be readily seen that the absence of compulsory laws is not a matter of much consequence. This kind of coercion is less offensive and hardly less effective than statutory enactment would be, and under some circumstances the employment of force would doubtless be sustained by public opinion if not by the law.

It is a crime to destroy the property of another without reason; but to destroy a building in order to arrest the progress of a fire is consistent with good sense and good citizenship. Similarly when smallpox becomes prevalent, and its prevalence extends so rapidly as to threaten the safety of a city, a State, or a continent, there are not many people in the world, certainly not many in the medical profession, who would stop to listen to a dissertation on personal rights before vaccinating a person known to have been exposed to the contagion of the disease. Vaccinate first and listen after.

The duty of the hour is plain. Educate. Educate the medical profession to a proper appreciation of the demands of duty, so that every physician shall feel compelled by the mandates of professional honor to vaccinate and revaccinate everybody who looks to him for guidance and protection. Educate medical students so that they shall be able to wield the weapons of protection with maximum skill and effect. Educate health boards so that they shall administer sanitary laws, not paroxysmally nor excitedly, but continuously, steadily and sensibly every day in the year. Educate school teachers by courses of instruction in hygiene at "teachers' institutes." Educate school children by including in their studies the subject of personal hygiene. Educate the community through the press and by public utterance. Educate the conscience of propagators and dealers in vaccine lymph so that they shall furnish a product that is free from extraneous infection. That is the duty which confronts us now, if the glory and the boast of our profession be founded on truth, that its highest aim is the prevention of disease.

103 STATE STREET.

CÆSAREAN SECTION, WITH REPORT OF A CASE.

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The Cæsarean section, always an operation of interest, derives special importance at the present day from the fact of its successful evolution. Formerly it was one of the most dreaded and fatal of operations; latterly it has become measureably safe in skillful hands. Improvements in the technique of this operation and the restoration of symphysiotomy have so far revolutionized obstetrical practice that to-day many obstetricians do not hesitate to denounce embryotomy as an unjustifiable operation save in the case of a dead fetus.

The statistics of Cæsarean section are very interesting; thus we find it stated that in 1877 Prof. Spaeth reported that there had not been a single case in the lying-in hospital in Vienna during this century, in which the mother survived. Baudon wrote in 1873 that in Paris there had not been one successful case in eighty years out of about fifty operations. It is only fair, however, to consider that these melancholy records were made in the midst of unsanitary hospital environments, for many successful results were obtained during the same period of time in private practice both at home and abroad.

In general the statistics of the operation until within a few years were decidedly unfavorable. Meyer in 1867 published statistics of 1605 operations in Europe and America; in these operations fifty-four per cent of the women died. Kayser's statistics of 338 operations show a mortality of sixty-two per cent. Of 2958 cases reported by Guéniot in 1866, fifty-six per cent died. In 1874 Schroeder gave the statistics of 1622 cases occurring in Europe and this country of which fifty-four per cent died. Harris' American statistics for the years 1846-86 record 144 operations with a mortality of sixty-two per cent.

So much for the dismal side of the picture. Let us now turn to more encouraging reports. Harris gives us reports of thirty-eight operations occurring in Europe and the United States, performed according to modern methods. Here the per centage of recoveries is sixty-nine per cent, Germany leading with twenty-five cases and twenty-one recoveries and the United States pulling down the general average with five cases and no recoveries. Then we have favorable reports of small groups of cases, as eight

operations in Ohio with six recoveries, nineteen operations in Louisiana with fourteen recoveries, sixteen cases operated upon by Leopold, Korn, Sanger, Obermann and Donat, with fifteen recoveries. Upon the whole we may say that up to 1886 Cæsarean section was a discouraging operation; but let it not be forgotten that similar results might have followed the performance of embryotomy in many of these cases and we have not considered thus far the saving of the child's life.

From the current medical literature of the day it is plainly evinced that our statistics are rapidly improving for the operation and we may confidently anticipate in the near future results commensurate, at least, with the performance of laparotomy for the removal of large pathological growths.

As regards the factors which have contributed to the improvement of the operation, we find them well stated by Garrigues; they are as follows: The antiseptic treatment; early operation; turning out the uterus before incision; the protection of the abdominal cavity; the compression of the cervix by means of an elastic ligature; the use of warm cloths about the uterus to prevent shock and the method of uterine suturing. Some indeed may take exception to the plan of drawing the fundus uteri out of the abdominal cavity and others may not like the use of the elastic ligature, though we believe both plans to be good ones if not necessarily essential to good operation.

For a more detailed explanation of operative measures let the subjoined account of a recent case suffice.

Case of Mrs. W. This patient was first examined in the St. Luke's Dispensary by Dr. Watkins, in September, 1893. She was then in the seventh month of pregnancy. Dr. Watkins at once discovered an anomalous condition of affairs and referred the patient to the hospital where she was admitted, in October, to the obstetrical service of Drs. Frank Cary and J. C. Hoag, the latter being then on duty. The patient, twenty-two years of age, of English extraction, said she was in good health as far as she knew and that she had been married about one year, this being her first pregnancy. She was of medium height and rather slender. She had suffered slightly from dyspareunia. A vaginal examination revealed the following conditions: At a depth of about one inch the examining finger encountered a large, rounded mass extending from within a finger's breadth of the symphysis pubis to the rectum and nearly filling the pelvis. The mass appeared to be a fetal head which it resembled in size, shape and consistency. Cranial bones and

sutures could apparently be felt through the tissues, but they could not be severally identified. The sensation obtained was quite similar to that given by a macerated fetal head. The os uteri was turned directly forward and was closely approximated to the pubic bones, i. e., it pointed upward in the supine position of the patient. The rounded mass could not be reached through the cervical canal. The appearance then was that of a fetal head low down in the pelvic excavation, which had pushed the lower uterine segment before it, thinning out its tissue to such an extent as to permit the os uteri to occupy the position above described.

Abdominal palpation showed that the fetus occupied the first cranial position. There was a fullness above the symphysis, a flattening in the umbilical region and a considerable prominence over the fundus uteri where the breach could be felt. The heart tones were heard in the position corresponding to a left occipito anterior position. Repeated examinations gave the same results. At this juncture Dr. Cary came on duty at the hospital.

Labor began October 19. October 20 the pains were not very severe but were regular and the patient somewhat worn by loss of sleep and inability to take food. She was now anesthetized with chloroform and examined by Drs. Watkins, Cary and Hoag. Upon introducing the hand into the vagina, a fetal head with well-marked caput succadaneum was found just above the symphysis pubis. By pushing back this head the hand could with difficulty be introduced into the uterus. One of us thought he could distinguish two fetal necks but doubted whether the case was one of a fetal monster or twin pregnancy. The other two examiners gave it as their opinion that they had to deal with a case of simple pregnancy complicated by the presence of a tumor, which indeed proved to be the case.

As relief to the patient was only attainable by laparotomy, the operation was quickly determined upon, and the operation was undertaken by Dr. Hoag with the skillful coöperation of Drs. Cary and Watkins and the further assistance of the house staff. The patient's temperature at this time was 100.5°.

After the preparations usual to laparotomy had been made, the abdomen was opened by an incision beginning about an inch above the umbilicus and extending to the vicinity of the bladder. A very moderate hemorrhage from the thinned abdominal walls (requiring no checking) took place and the uterus was quickly exposed to view. This organ exhibited an infinitude of small dark colored veins. The incision was enlarged by the scissors and the

uterus drawn out from the abdominal cavity without difficulty. A solid, round, elastic ligature was then applied to the cervix with three turns and the abdominal wound was protected by a caoutchouc sheet. The serous coat of the uterus was then incised and reflected to an extent of about one-third of an inch on either side by means of a periosteotome. This procedure was accomplished in a moment and subsequently proved of great advantage. The anterior uterine wall was then incised and the incision was found to correspond with the principal diameter of the placenta. This organ was speedily detached and the placenta and child turned out of the uterus and consigned to the care of an interne and nurse. The child was lightly asphyxiated but resuscitated without special difficulty.

The operation up to this point offered no difficulties, and only a few minutes had elapsed from the time of the first incision. Owing to the use of the provisional rubber ligature, the hemorrhage was insignificant. The tumor was now superficially examined. It took its origin in the right ovary, but occupied more of the left than the right side of the pelvis. The portion above the brim of the pelvis extended well into the iliac fossa, and was found to have fluid contents as well as the bony tissue felt in the vaginal examinations. It was plainly a dermoid cyst.

The uterus at first contracted rapidly and firmly, and in a few moments the uterine suturing was begun. The peritoneum having been previously laid back as above described, the introduction of the sutures through the muscular coats was greatly expedited. The needle was introduced well back from the cut edge and brought out near the decidual border. About twenty sutures were employed in this way, but only a few were knotted before the provisional ligature was released from the cervix. By this time the uterus had become quite flabby, and the gaping ends of the cut sinuses were plainly visible. To promote better contractions the uterus was squeezed with the hand and ergot was administered hypodermically. These procedures accomplished some good, but the uterus still remained quite relaxed, and as soon as the cervix was freed from the ligature a free hemorrhage began. The uterine cavity was now drenched with very hot water in large quantity, the rubber apron completely protecting the abdominal cavity which, indeed, remained entirely uncontaminated throughout the operation. The flow of blood persisted notwithstanding all efforts and to such an extent that the operator was greatly tempted to complete the operation by amputation of the uterus. But the free

application to the endometrium of tincture of iodine did much to control the bleeding and the knotting of the sutures accomplished the rest; it would doubtless have been better to have done this sooner.

The peritoneal sutures were now applied securing close sero-serous apposition of the cut edges of the membrane. At this juncture the uterus was firmly squeezed with the hands, repeatedly, to favor contractions and blood mingled with air bubbles was seen to escape between the sutures. To this circumstance may fairly be attributed an attack one week later of what was doubtless pulmonary embolism. No toilette of the abdominal cavity being necessary, the abdominal sutures were applied as quickly as possible. No special provision was made for drainage, though it might have been well to do so, particularly as the position of the tumor interfered with natural drainage through the cervix. The patient by this time was greatly exhausted by the amount of blood lost. Hypodermic stimulation was resorted to during the operation and hot compresses about the uterus had by no means been neglected.

In the subsequent management of the case great credit is due to the skill and unremitting attentions of Dr. H. D. Peterson, of the House Staff, who devoted much of his time to the patient. In the after-treatment of the case camphor dissolved in oil was injected with the hypodermic syringe hourly for many hours. A few rectal injections of tincture of digitalis and whisky were also employed and later on an infusion of digitalis was used. The patient complained bitterly of hunger almost as soon as consciousness returned after the operation and the administration of food was begun early. This consisted of milk with lime water, the white of egg and the juice of broiled steak. She continued to be ravenously hungry for many days.

The patient rallied slowly from the operation at first, but after the first day or two did well until the end of the first week when she was attacked by severe pain of a pleuritic character in the left side, followed on the next day by similar pain in the right side. On the third day moist râles were abundant throughout both lungs. The respirations became rapid and the temperature increased for a few days but there was no cough; this was the attack of embolism referred to. Aside from this attack nothing occurred to interrupt convalescence. The temperature did not range very high, the maximum being 102.8° in the axilla. There was a purulent discharge from the uterus for a number of days and

douches were given. From time to time the nurse found in the dressings, sutures from the uterine wound. The abdominal wound healed firmly without suppuration, and the cicatrix was found to measure seven inches in length. The patient was in bed a little more than three weeks.

About fourteen weeks later she returned to the hospital to have the dermoid cyst removed. It was determined to remove it per vaginam and the operation was performed by Dr. Watkins. Upon opening into the cul de sac of Douglas the tumor was exposed. The sac of the tumor was incised and the fluid and semi-fluid contents escaped in large quantity.

The bony portion of the tumor which was felt during pregnancy and which simulated the fetal cranial bones was held in position by the sac of the tumor which was closely applied to its external and convex surface. This bone is irregularly quadrilateral in shape measuring 3x2 inches in its principal dimensions. One portion of it closely resembles the appearance of a parietal bone in a fetal head. Spaces between the two principal bony masses are covered by the sac of the tumor and it was this arrangement that gave the tumor the similitude of a fetal head, for these open spaces seemed to be cranial sutures. The bone contains seven well-formed teeth. There were also two or three teeth which grew not from the bone but from the sac wall.

After the collapse of the tumor but little difficulty was experienced in removing the sac. The cut edges of the posterior vaginal wall were then partly drawn together with silk worm gut; iodoform packing was introduced and a few sutures were placed in the perineum which was slightly lacerated by the speculum. Dr. Watkins being called out of town the patient was left to the care of Dr. Hoag. Her recovery was rapid and uneventful. The gauze packing was removed gradually, the last of it being withdrawn on the ninth day.

The modern method of performing Cæsarean section, to which has been given the name of Säger, dates from 1882 at which time Leopold, acting upon Säger's suggestion, employed multiple suturing in two rows. Säger's operation involved three principles in the closure of the uterine wound. 1st. Numerous interrupted sutures. 2d. Arrangement of sutures in two rows, deep and superficial. 3d. Seroserous union of the peritoneum. To favor union of the peritoneal surfaces, he at first thought it necessary to resect a strip of muscular tissue at each edge of the wound and to lay back the peritoneum, both of which procedures

he subsequently abandoned as nonessential. But the underlying principles of his operation are nevertheless retained in all modern methods of operating and to them is due the marked success that now attends the operation.

The results obtained by this improved Cæsarean operation are stated by Harris in the American System of Obsetrics in 1889 about as follows: the operation has been performed 149 times by eighty-two men in eleven countries with the result of saving 108 women and 136 children. The best results are credited to Germany; eighty operations by thirty-eight operators with twelve deaths, Leopold alone operating seventeen times with only three deaths. In our own country there were twenty-two operations with a maternal mortality of thirteen and a fetal mortality of three. The better results in Germany are probably due to the fact that a larger proportion of the cases occurred in hospital practice, that is to say in the hands of skillful obstetricians who are quick to appreciate the necessity for prompt action and waste no time in futile attempts to deliver the mother by impracticable methods.

Harris says further that "in Great Britain where the mortality has been about eighty per cent under the abdominal operation, the opposition to its performance, except in very extreme cases, has given the alternative of craniotomy in women having a true conjugate of $2\frac{1}{2}$ inches and less, a much higher rate of mortality than the improved Cæsarean operation has shown in Germany," which speaks very ill for the craniotomy when we consider the inevitable loss of the child by the preferred English plan. The same statement applies in a measure to the Vienna hospital where until recent years at least the Cæsarean operation was never performed except for "absolute indications."

The success of the Säger operation has counted against the Porro method which at first gave better results than the conservative Cæsarean section. At the present time its results seem to be inferior to those obtained by the Säger method, although it is said to possess superior advantages in cases where the uterus is in a septic condition.

The following in a recent letter from Dr. Robert P. Harris, to whom we are indebted for the most valuable statistics of this subject, is of much interest as being the latest information at hand :

PHILADELPHIA, Feb. 26, 1894.

DEAR DR. HOAG :—The improved Cæsarean operations in the United States counting your own (1882-94), foot up ninety-two cases.

Women, recovered.....	57	{ 92.
" died.....	35	

Children, living.....	74	} 92.
" dead.....	17	
Not stated.....	1	

The best year was 1890. Seventeen operations, with thirteen women and sixteen children saved, all delivered alive. I have seen nine women operated upon that recovered, and recommended the operation in two other cases that did the same. I saw two cases die that I regarded as hopeless before the operation, and these were the only fatal cases that came under my notice. I have known two women that recovered after two sections each, and nine after one section each, in this city. * * * I have little fear of the operation when performed early, and prefer that it should be undertaken before labor.

Yours truly,

ROBERT P. HARRIS.

The fundamental principles underlying the improved Cæsarean section are well established, and have already been adverted to. There are, however, numerous special plans of operating to some of which it is well to refer.

Regarding the time for operating, it is of course all-important to operate as soon as the indications are present. It is not required to wait, as in the forceps operations, for the fulfillment of certain conditions such as the complete dilatation to the os, the engagement of the head, etc. We must not wait until various ill-advised tentative efforts have been made to deliver through the parturient canal, or until the unaided woman is moribund from the undue prolongation of voluntary efforts, for to such attitudes toward patients we must ascribe much of the unnecessarily high mortality of the past. The indications for the operation are sufficiently well known, and all unnecessary delay is extremely dangerous. Some operators prefer to operate before labor sets in ; others choose to first induce labor and then operate ; but the majority are in favor of awaiting the beginning of natural labor so that they may be sure of a dilated os, to afford good drainage and efficient uterine contraction to prevent undue hemorrhage. It is difficult to see why one should resort to the often difficult and tedious plan of inducing labor even though one might be reasonably sure of the exact period of gestation which is far from being the case.

Some operators like to preserve the membranes as long as possible ; others choose to rupture them before beginning the operation. It would appear that the child's safety would be enhanced by allowing the amniotic fluid to drain off, lest in case the provisional rubber ligature is employed the fetus might aspirate some of the fluid into its lungs. In point of fact the fetus is usually somewhat asphyxiated when the ligature is employed and the presence of fluids would seem to increase its danger. The fetus often shows great powers of resistance to unfavorable sur-

roundings, as in the case recently reported in England where the neck was inadvertently included in the rubber ligature, but we should be thoughtful to promote its safety as far as possible.

A great many operators incise the uterus *in situ*, that is to say without the use of the rubber ligature. When this is done the danger of infecting the peritoneum is certainly increased. So far as protecting the abdominal cavity is concerned, certainly no plan of operating can equal the one described in our case when, after drawing the uterus out of the abdomen, a large piece of rubber sheeting was used. A small opening was made in the center and this, by stretching, was sufficiently enlarged to enable it to pass over the uterus, after which the rubber contracted firmly around the cervix thus offering complete protection to the abdominal cavity.

The plan of first reflecting the peritoneal covering of the uterus has already been described. This is now said to be a superfluous undertaking but it seemed to us a very useful one.

Some operators have successfully dispensed with all compression of the uterine vessels; others have relied upon manual compression—the latter in our hands was inadequate as we proved when endeavoring to control the hæmorrhage that ensued upon the removal of the elastic ligature. A nonelastic method of compression might be used, such as a piece of gauze tightly held with the hands as was suggested by Dr. Cary. But at all events some form of compression seems well nigh imperative, and the suppression of hæmorrhage certainly is of the greatest advantage to the operator.

In Dr. Senn's excellent report of two cases of Cæsarean section and one case of laparo-hysterotomy for a tumor, we find an ingenious method of operating described. Senn marks the line of opening in the uterus with a superficial cut of the required length and then tears the tissues asunder, thinking thus to limit the amount of hæmorrhage. He then draws out the uterus, surrounds it with a rubber ligature and proceeds to apply the uterine ligatures which are introduced *en étages* in four successive rows.

Just what influence the tearing of the tissues may exert in preventing hemorrhage is difficult to estimate because the blood escapes mainly from large open sinuses which are unprovided with muscular walls and possess merely an endothelial lining. The case is certainly different from what it would be with vessels of the ordinary sort when contraction and retraction readily takes place.

A German operator has gone so far as to knot the uterine

sutures within the uterine cavity, though the advantages of such an operation would seem to be merely fanciful.

The successful revival of the Cæsarean operation constitutes one of the most important advances in the obstetric art. It is an operation that has come to stay. To be sure it will never be performed in this country to anything like the extent that will be practiced abroad, for the reason that we have markedly fewer cases of osteomalacia, rachitis and the other diseases that swell the number of cases of dystochia in foreign countries and contract the statistics of life saving. One of the first lessons learned by the obstetric student in European countries is a proper appreciation of the diameters of the parturient canal. In this country we have so few cases of contracted pelvis to deal with that we expect to deliver all women of their children per vias naturales. When the lesson of pelvimetry has been well learned, we shall have an earlier resort to capital obstetric operations and a better statistical record to show for the Cæsarean operation.

58 FORTY-THIRD STREET.

A SPLINT FOR HIP DISEASE—WITH REMARKS ON MECHANICAL TREATMENT.

By WALLACE BLANCHARD, M. D.

ATTENDING ORTHOPEDIC SURGEON TO THE HOME FOR DESTITUTE CRIPPLED CHILDREN, CHICAGO.

The splint here offered for your inspection is presented as embodying certain therapeutic requirements in the treatment of hip disease. I have called it a conformidable antifriction hip splint, and have used it with excellent success for twenty-two years. Probably a fair definition of an antifriction splint would be one intended to approximately secure fixation of the hip and at the same time exert a traction force outward and downward in an axis with the neck of the femur, to as evenly as may be relieve the pressure of the head of the femur in the acetabulum.

I believe that the same general rules govern the pathological progress and cure of chronic joint disease, whether it be morbus coxalgia "Pott's disease" of the spine, or disease of other movable articulation. Any one of these beginning as traumatic, strumous, or syphilitic, usually soon become tubercular. The general tend-

Read before the American Orthopedic Association, Washington, May 29, 1894.

ency is toward destruction of one at least of the presenting surfaces of the articulation, with accompanying pain, prostration and more or less distressing deformity. In every one of these diseases friction, if it does not kindle inflammation, increases it, grinds down the inflamed osseous structure into detritus, and destroys reparative tissue more rapidly than it can be produced.

If this be true then it necessarily follows that the most successful treatment must be that which relieves both movement and pressure, the two factors of friction to the best possible advantage. Of course perfect immobility of the hip joint cannot be secured, except by apparatus that secures both sides of the body, both hips and both legs; but there has long ceased to be any doubt that immobility for all practical purposes is secured by any well-fastened, immovable and inflexible splint that extends from the lower angle of the scapula to the lower border of the calf of the leg on the diseased side, and by means of which movement can be reduced to 2° or 3° , and even that can be retarded, and the leg of the well side at the same time be left free for use for the exercise both in and out of doors, that, in my experience, is absolutely necessary for recovery in a large majority of cases. So much for the movement in the joint. Now as to pressure:

I notice that many writers, when speaking of the value of traction in hip disease, refer only to longitudinal traction, which can only impinge the head of the femur more firmly into the acetabulum, and in my opinion is of but little value as a therapeutic measure. In speaking of traction, I wish to be understood as referring only to that made in an axis with the neck of the femur. That traction does distract, would seem to be as nearly settled as most any question in orthopedic surgery by the experiments of König. *Zeitschrift f. Chirurgie*, 1873; Brackett, *Trans. Am. Or. Ass.* Vol. II., and Bradford, *Trans. Am. Or. Ass.* Vol. V. and many others, perhaps as well known.

Now that it is satisfactorily proven that distraction does distract, many eminent observers in this direction seem to desire nothing further as a therapeutic agent. While those who employ Mr. Hugh Owen Thomas' method, regard immobilization as entirely sufficient. That both are efficacious is undoubtedly proven by prolonged clinical experience. And since it is as much of a physical impossibility to have an immobilization that is absolute and perpetual as it is to have a distraction that distracts perpetually and absolutely, why not get the advantage of both? And what is distraction but the relief of pressure? And what is immo-

bilization but the inhabitation of movement? Then why should not the relief of both movement and pressure, the two factors of friction, be the ideal treatment?

The splint here presented I applied on patients in Dr. Edmund Andrews wards, in Mercy Hospital, Chicago, in 1872, three years before Mr. Hugh Owen Thomas published the first edition



THE PATIENT WITH SPLINT ADJUSTED.

of his book on the Hip, Knee and Ankle Joints. I hope, therefore, I will not be charged with making any infringement on Mr. Thomas' splint.

The following letter from my respected friend and preceptor Dr. Edmund Andrews, Surgeon in Chief to Mercy Hospital, and an honorary member of this association, will explain itself:

WALLACE BLANCHARD, M. D.

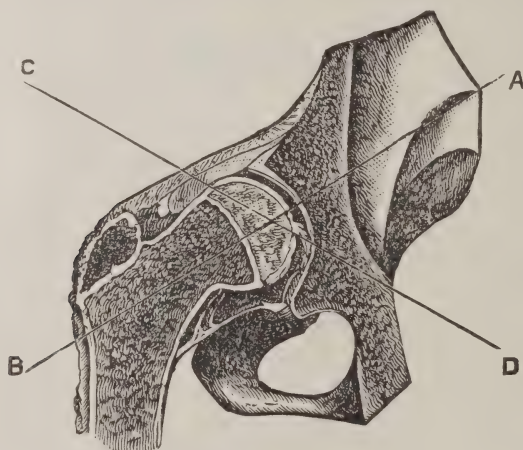
In the spring of 1872, you applied to my wards in Mercy Hospital, the strip iron hip splint, with high shoe and crutches, the object being to immobilize the hip joint. This splint was substantially the same as brought before the profession three years later by Mr. Hugh Owen Thomas, of Liverpool, in his book, first edi-

tion, 1875. I do not suppose that Mr. Thomas consciously derived his plan from yours, but rather that having the same disease to treat, and the same indications to fulfill, he devised a similar apparatus without knowing that it was already in use in Chicago. In the spring of 1872, you added to your splint an arrangement for making both longitudinal and lateral extension, and applied the same in my wards.

EDMUND ANDREWS.

In fitting the splint, the patient should stand with the foot of diseased side blocked up until the pelvis is level, then a strip of soft wagon makers' iron, known as binding, three-quarters of an inch by three-sixteenths for a child, to extend from the lower angle of the scapula down over the back, thigh and leg on the affected side until within two inches of the heel, is bent by wrenches to the exact form of the body. To the upper end of this upright is to be riveted a thoracic band, using five-eighths by one-eighth with two-thirds of its length on the unaffected side, and bent oval to the form of the body. A strip of the same iron is to be placed in the position of a band to reach two-thirds around the leg at a level with the upper margin of the patella, and a like band at the lower end of the upright to extend two-thirds around the ankle at a level with the upper margin of the maleoli. These bands are all secured with straps and buckles in front. A short strip of the same iron is riveted to the upright and bent oval to a position necessary to support a disc of firm saddler's leather three inches in diameter; the lower third of which is to rest on the anterior, superior spine of the ilium. From this pad extending downward to the outside of the knee band is a strip of the same iron, bent so as not to be nearer than two inches to the outer side of the thigh at any point. The lower end of this outside upright is a sliding joint which permits of the angle of the main upright being changed at the pleasure of the surgeon. To each side of the lower ankle hoop is attached a buckle for the accomplishment of longitudinal traction by means of adhesive plaster applied to the leg. The counter longitudinal traction is presented by a couple of loops of leather extending from the thoracic band to a tight leather waist belt. From the outside bar with its upper end resting on the crest of the ilium and its lower end on the outside of the knee band is attached a wide, soft, padded band passing around inside the thigh by means of which all the lateral and slightly forward traction which the patient will tolerate comfortably is exerted. The power of both tensions being equal, the mean traction will be seen to be in an axis with the neck of the femur. The main strip down the back, thigh and leg secures nearly complete immobility, and I have come to look at this as almost as necessary as in fractures. The surface of the splint next

to the body is padded and the whole instrument is covered with sheepskin. A patten or cork sole is placed under the foot of the unaffected side of such thickness as to prevent the other foot from touching the floor. The patient is given a pair of crutches and told to take all the exercises in the open air that his general condition will permit. The splint should be moulded perfectly to the form and be painless to wear or it has not been properly applied. It is just as much a bed splint as a walking splint, and should never be removed, except for changes or repairs. The joint is now protected from jar or concussion and both factors of friction are largely overcome. As the muscular spasm subsides, and the flexed leg falls into the natural line of the body, the upright section of the splint should be shaped so as to conform to the improved position.



VERTICAL SECTION THROUGH HIP-JOINT OF A CHILD.

From Gibney, after Morris.

A to B indicates the direction of traction necessary to relieve pressure in the socket. C and D indicates the direction in which the head is carried by traction in an axis with the shaft of the femur, aided by the femoro-pelvic muscles.

In the ordinary or painful form of hip disease, in which pain is a prominent symptom and exacerbations are common, with the leg flexed, and muscular spasm so firm as to fix the femur with a rigidity that often stimulates a bony ankylosis, it is quite the usual thing to find that after the second or third day of wearing the splint above described that the patient is sleeping well; that the night cries have ceased and that all involuntary, or reflex, spasm has subsided, the leg hanging in a normal position and the patient

making no complaint whatever, and remaining in this most pleasing condition to both the surgeon and patient for the whole period that it is necessary to wear the splint to effect a cure.

CASE 1. Owen H. —, aged six years, was admitted to the Home for Destitute Crippled Children, Chicago, February 20, 1894. Diagnosis, hip disease; duration, one year. For three months previous to admission was kept on the bed with longitudinal weight and pulley extension at the Presbyterian Hospital. Right leg normal, left leg immovable; flexion 50° . Abduction 15° ; eversion 15° ; no abscess; thickening of left hip joint. Immediately after his admission to the home, Dr. F. S. Coolidge took this patient before the class of the Post Graduate Medical School, and the muscular rigidity was so great that the entire class pronounced it a case of bony ankylosis of the hip joint. Pain throughout the left leg, down the back of the affected side was intense, and night cries continuous.

March 28 Blanchard's hip splint was applied. On the fourth day of wearing the splint the muscular spasm had entirely subsided. The position of the leg was normal, and the patient had ceased to complain of pain. On the sixth day the nurse reported that the night cries had subsided entirely; that the patient slept well and gained a good appetite. At this date the patient is still improving and is out of doors every pleasant day. My experience is that at least eighty per cent of all cases taken in the first stage should make good recoveries without ankylosis or deformity, and that of the other twenty per cent that drift into the suppurative stage, because perhaps most of them had developed a purulent degeneration in the joint before receiving any treatment whatever; then fifteen to eighteen out of that twenty should still make good recoveries; and in fact I have frequently been surprised at the rapid recovery without ankylosis and with slight or no deformity of cases taken after they had advanced well into the suppurative stage.

Of course we occasionally see the destructive form, which is rapid, severe, and but little influenced by treatment in which a removal of dead bone or perhaps an excision, is the only advisable course, but they are certainly not more than three or four per cent of all the cases I have seen. And yet it is the practice of many of our general surgeons in the West to excise the head immediately that the diagnosis is made "to save time," or at most the patient is laid on the bed with a weight and pulley longitudinal extension or a plaster of Paris bandage is applied over the side and thigh with

the only apparent intention of taking up time till the patient or his friends consent to an excision. Much of this apparent apathy is due to the fact that the operator is able invariably to draw down the two feet together after an excision and show that the leg has only been shortened a half an inch or so, closing his eyes to the fact that after a time, if he has a fairly good result, his patient will be walking with his weight pushing the stump end of the femur up until the leg is shortened four to eight inches. Humanity demands that this indiscriminate sacrifice should cease.

A few years ago Dr. A. M. Phelps, of New York, originated a splint to as far as possible "absolutely immobilize the hip joint; secondly to relieve intra-articular pressure." The same gentleman closes a paper, *Trans. Am. Or. Ass. Vol. V.*, on the etiology of the various deformities of hip disease showing long and laborious research into the varying conditions and relations of the muscles surrounding this joint in health and disease with these words: "The reader at once asks the question 'Why all this work? What good can come of it?' I will briefly answer: In the treatment of hip joint disease fixation to prevent motion, and extension to overcome intra-articular pressure, is the law of treatment." And "that to relieve intra-articular pressure by overcoming the contraction of the muscles, traction should be made in the line of the axis of the neck and not of the shaft." I believe these statements of Dr. Phelps to be as incontrovertible as they are vigorous.

Dr. E. H. Bradford says, *Trans. Am. Or. Ass. Vol. V.*, "Slight motion, if all intra-articular pressure were removed, would not be as injurious as the exaggerated constant articular pressure without motion." And "an articular bone surface freed from pressure, heals as is seen in cases of amputation at the hip, where a carious acetabulum will be seen to cicatrize entirely."

The weight of pathological data seems to me to be in the same direction as that just quoted, and certainly indicates that as nearly absolute and unremitting relief of friction as possible is a necessary therapeutic measure.

It is my observation covering a period of more than twenty years and of over two hundred cases many of whom have been in my splint for from two to four years that the more prolonged the traction and fixation the less the likelihood of bony ankylosis or deformity; and Dr. Phelps says, speaking of prolonged fixation and traction, *Trans. Am. Or. Ass. Vol. V.*, "No case need recover with bony ankylosis or angular deformity," and that is certainly my experience.

My patients sit very well on one side of a chair with a fixed leg hanging over and I never hear complaints of special discomfort in that regard.

Till the spasm has subsided from fifteen to twenty pounds of tension should be maintained and after that eight to nine pounds is all that is usually necessary on a child.

I have occasionally attached spring scales at the four points from which traction power is exerted on this splint to graduate the amount of tension used. When that is done it should not be forgotten that about one-third of the traction force is lost in the division of directions.

Confining the patient to the bed with a longitudinal weight and pulley extension for weeks and months at a time seems like a relic of barbarism, and is sufficient in itself to ruin the health of an otherwise well person. If there are cases benefited by that practice, I have not seen them.

In conclusion there are several points that seem in the light of my experience very clear.

FIRST. It is friction that destroys the delicate new tissues of repair more rapidly than nature can provide them.

SECOND. As friction is relieved, so proportionately, are the chances of deformity or ankylosis reduced.

THIRD. To relieve friction, traction is just as necessary as fixation, and fixation is just as necessary as traction.

FOURTH. From fifteen to twenty pounds of distractive force is necessary for the first few days till the pain and spasm subsides and after that from eight to ten pounds distracts sufficiently for all practical purposes of treatment.

FIFTH. While there are perhaps occasional cases that rebel against distraction and other rare cases that contraindicate immobilization, such cases are so seldom met with that they do not affect those general conclusions.

SIXTH. Traction prevents jar and concussion in the socket.

SEVENTH. Traction to overcome muscular spasm to the best advantage and at the same time relieve pressure in the joint must be exerted in an axis with the neck of the femur.

EIGHTH. With proper attention in a given case, improvement will generally be in proportion, as movement and pressure, the two factors of friction are relieved.

Seldom, indeed, will a recovered case be found with angular deformity or bony ankylosis if these indications are fulfilled.

A SUGGESTION AS TO TREATMENT IN CONFLUENT VARIOLA.

By S. W. BURSON, M. D., CHICAGO.

As smallpox is a disease which is distributed in the patient by the circulation, and develops upon the surface all measures which tend to increase the peripheral circulation should be avoided; hence, hot rooms, warm beds, too abundant covering, warm drinks, alcohol in any form, blisters and hot applications are contra-indicated.

As an abundance of water is needed to supply the tissues drained of their serum by the rapidly filling vesicles, all measures which prevent a patient from making his wants known should be avoided; hence, all sedatives, and particularly opium preparations, are contraindicated.

The patient should be kept as cool as possible; he should be lightly covered; if a child he should have a single constant attendant, preferably the mother; his nourishment should be such light and fluid diet as he may desire and is able to take; especially should he have an abundance of cool water.

Medication should be directed, 1, toward preventing the development of the eruption at whatever stage it may be found; 2, toward preventing the absorption in the so-called pustular stage, and, 3, toward maintaining asepsis of the surface during the convalescence.

To meet the first two indications I found pure ichthyol, sulfo-ichthyolate of ammonia, in full strength, painted upon the surface with a camel's hair brush in any stage of the eruption very satisfactory. It appears to destroy the microbe. Used in the papular stage it seems to prevent pustulation, and in the vesicular and so-called pustular stages to prevent the septic absorption. The back is the region best suited for its application, being a large, smooth surface. After painting the back, I applied a layer of ordinary absorbent cotton, and directed the patient to lie upon the back until dry. The subjective effect is very agreeable when the remedy is applied during the so-called pustular stage. It induces a cool sensation, reduces temperature, and allays the itching.

Under a single application the pustules cease to develop, desiccate and desquamate. Septic absorption from this large surface ceases. I have seen no ill result follow the treatment in the few cases in which I used it, and I look upon the remedy as being harmless. Others who have used it at my suggestion report uni-

formly good results. I had intended to give a few cases in detail, but time forbids.

In those cases in which there has occurred secondary pus infection of the surface, I found ichthyol to be practically useless. In this stage the mild boric acid moist dressing serves admirably.

A mortality rate in variola of twenty per cent among children and vaccinated adults and of more than 80 per cent among unvaccinated adults during this epidemic together with the uniformly favorable results in the few cases in which this treatment has been used is my justification for taking your time this evening.

I trust that the profession will give this remedy a trial and I should be glad to hear of the results since my own cases were too limited in number to warrant more than a suggestion.

A REPORT OF SIXTEEN CASES OF EPILEPSY GIVING SYMPTOMS OF EYESTRAIN, WITH TREATMENT.

By J. ELLIOTT COLBURN, M. D.

PROFESSOR OF OPHTHALMOLOGY, CHICAGO POLYCLINIC.

The cases in this report came under my observation from January 1, 1887 to May 1, 1890. I was enabled from various sources to secure for examination forty-three cases of well-marked epilepsy. The cases selected for treatment were those presenting subjective and objective symptoms of eyestrain aside from epilepsy. Those rejected were cases presenting other causes for the epilepsy, or failing to give any evidence that the eyes were in any way abnormal.

CASE 1. Miss H. P., July 18, 1887. Has had good general health. Slight nipping of lids and contraction of brow. At eleven years of age had spasms, repetition of attacks once in two or three months; pain and discomfort from light; pain over eyes all of the time; a stinging sensation in head and back of the neck; flashes of light. The history of the symptoms given would indicate that the patient had epileptic seizures without aura. Short attacks of unconsciousness frequently follow attempts to use the eyes. Vision equalled $\frac{2}{3}\%$. Under atropine, vision equalled $\frac{2}{3}\%$, giving a hypermetropia equal to $+1.50$ D. Full correction given.

September, 1889, reports that there has been complete cessation of fits, perfectly free from headache, and no pain about the eyes.

CASE 2. M. H., aged 19 years, 1887. Has always had nervous trouble. During school life was troubled with nervous headache; intolerance of light. At six years of age began to have spasms that were epileptic in character, occurring at any time during the day, never nocturnal. He had never had objective symptoms of eye trouble, the only trouble being that of effort to see and to concentrate attention. Muscle condition, esophoria 4° . Vision equaled $\frac{2}{3}0$ in each eye. Under atropine, hypermetropia equaled, O. D. + 1.75; O. S., + 2+50 at 90° . Two fits occurred during the examination, and but one occurred during the following year. Full correction given.

June, 1893, patient reports complete freedom from previous troubles.

CASE 3. Mrs. T., aged twenty-five years, 1887, has had from early childhood attacks of mental depression, hysteria, palpitation of the heart, and dread of the indefinite. During the past four years has been subject to fits; pain in top of the head and back of the neck; could read but short time; looking steady is apt to bring on spasm. Diagnosis by attending physician; epileptic seizures occurring two or three times a week. Vision equaled $\frac{2}{3}0$. Under atropine, hypermetropia equaled + 1.50 D. in each eye. While the eyes were under atropine all of the previous symptoms were materially lessened, and no fits occurred. The correction was constantly worn, and the patient reported in three months she was better in every way. But she had a light fit once in from thirty to sixty days.

Two years later, general condition much improved. One or two fits during the past year. At this time an examination was made and an exophoria of three D. recorded.

CASE 4. R. H. P., aged nineteen years, was first examined December 21, 1887. Family history good. From early childhood had had slight convergent strabismus. Later, diplopia gave so much confusion of vision that it was annoying. Several times during school life had spells in which face became flushed, and had slight vertigo with short periods of unconsciousness; never had been subject to headaches. Vision equaled, left eye, $\frac{2}{4}0$, right eye $\frac{2}{3}0$. Under atropine, compound hypermetropic astigmatism equaled +50+50 cyl., ax. 180 each eye. Under correcting glasses the confusion of vision and spells disappeared, but he was still conscious of double vision. He gave an esophoria of 12° , which was corrected by tenotomy. September, 1894, reported complete relief.

CASE 5. Miss B. H., December, 1887. Family history, consumption, rheumatism, nervous diseases. General appearance, she holds her head down when she looks at you, sullen. At two years of age had scarlatina, following which, had chorea. When about six years of age had several spells resembling epileptic seizures; complains of constant headache. General symptoms of hysteria and hysterio-epilepsy. Had been several months under treatment without being benefited. Vision equaled $\frac{2}{3}0$ each eye. Under atropine she accepted, O. D. + 25, ax. 90 O. S. + 75, ax., 180. Examination was unsatisfactory on account of her unintelligible answers. Was not benefited by treatment.

CASE 6. Miss F., aged twenty-two years, June, 1888. Had been subject to epileptic seizures from about her tenth year of age. During her school life they occurred from three to six months apart. During the past two years, and during the time she was studying stenography, she had had attacks once in two weeks. Occasionally they would occur daily for three or four days in succession. She was subject to constant headache; pain in back of the head and neck. Vision equaled $\frac{2}{3}0$. Under atropine accepted in left eye, +1. sph. + 75 cyl., ax. 90. Right eye, +2. sph. + 5. cyl., ax. 90. Esophoria equaled two to ten degrees. For three months following the instillation of atropine, and while using correction, she had had no seizures. Then several occurred during one week. I then advised tenotomy for the esophoria, as prisms of rest relieved headache. Operated correcting error in full.

September, 1894, reported that she had been perfectly free from headache, eyestrain or convulsions, from date of operation.

CASE 7. E. G., aged ten years, referred by his teacher, complained of constant headache. Teacher noticed that frequently during his study hours, and especially during reading exercises, he would have loss of consciousness followed by extreme pallor. These attacks always occurred either during or just following a more or less protracted use of the eyes. Vision equaled $\frac{1}{2}0$. Esophoria equaled 9°. Under atropine he accepted, left eye, —3. — 1. 25 cyl., ax. 135; right eye, —3. 50 cyl., ax. 45.

Ten months following the operation find patient entirely free from headaches, and the teacher reported that the boy had had no little fits during the school session.

CASE 8. C. M., aged ten years, 1888. Delicate, nervous child; blue eyes; blepharitis-marginalis; drooping lids. Had brain fever at two and one-half years of age. During the attack had three convulsions, made a good recovery. Could not attend school on

account of headache; confusion of mind; pain in top of head and back of neck. Had spasms at night and occasionally during the daytime whenever he attempts to use the eyes for any length of time. Spasms followed by deep sleep. Following the fits has idiotic expression. Had been wearing glasses for a short time. Under atropine, vision equaled $\frac{2}{6}$ 0. +.50 cyl., ax. 90 each eye vision equaled $\frac{2}{6}$ 0. Esophoria equaled from eight to ten degrees. Two months following the correction still find esophoria equal to from eight to ten degrees. Advised tenotomy as the fits continued, and operated internal recti, both eyes, correcting error in full.

October, 1893, patient reports that he had no fits during the past five years. He has greatly improved in general appearance. General coördination and complete freedom from headaches.

CASE 9. Miss H., aged thirty-five years, 1889. Family history good. Personal appearance, auburn hair, blue-gray eyes. Personal history: nervous headaches; could not attend church or theater without headache; severe pain in top of head and back of neck and in shoulder; excitement would produce headache. For the past five months had been having spells resembling fits of epilepsy followed by hysteria. Vision equaled $\frac{2}{4}$ 0. Under atropine accepted, left eye, +.50, ax. 90. right eye +1.50 ax. 90. Correction given. Hyperphoria equaled two degrees. The following winter we advised a correction of the hyperphoria. Up to this time the patient had never been able to wear full correction, accepting only one-half of the cyl. worn under atropine. Immediately following the operation full cyl. was accepted, and has been worn constantly during the past two years. The patient had no asthenopic symptoms, and has had no return of convulsions. She occasionally has sick headaches, these following some unusual fatigue.

CASE 10. Miss B., 1889. Good family history. General appearance, gray eyes, brown hair, good general health. Has had eye trouble for four years. Gives history of having been treated for optic neuritis, and during the time had to stay in darkened room. This followed diphtheria. Since the diphtheria has had nervous headaches, stiffness in back of neck and tenderness in cervical region, spasms of the face with loss of consciousness. Present condition: Lids drooping; contracting of the muscles of the face when attempting to use the eyes for close work; sensation of depression preceding the attacks. Under atropine she accepted a —5. in each eye. No astigmatism. Muscle condition: Exophoria, 4 degrees; hyperphoria, 2 degrees. Operated correct-

ing the hyperphoria, and one month later corrected the exophoria. Her physician reported to me in January, of this year, 1894, that she had had no fits since she began wearing her glasses, and that following the correction of hyperphoria, the other symptoms disappeared. She is now in good health.

CASE 11. Miss A., 1889. Gives history of epilepsy from childhood; no symptoms of eye trouble nor headache. Vision normal under atropine. Muscle condition: Esophoria, 8 degrees; hyperphoria, 1 degree. Operated correcting the hyperphoria, exophoria remained. Three fits occurred in rapid succession immediately following the operation. One month later corrected the exophoria. She has had during the month three fits, these occurring immediately following the last operation. Prior to this she had been having fits daily. During the following year she had had no attacks of epilepsy. I have been unable to communicate with her since, as she has changed her address.

CASE 12. E. E., January, 1890. Watchmaker; first noticed the following symptoms about three years ago: Vertigo, followed by slight constant headache; pressure in top of head and back of neck; loss of memory; confusion and dread; attacks of vertigo and unconsciousness which occurred once in two or six hours whenever he attempted to use the eyes for close work. When he refrained from reading, writing or any close work, attacks occurred one in from one to two weeks. Vision normal. Under atropine right hyperphoria equaled 2 degrees. Exophoria, 2 degrees. Tenotomy of inferior rectus resulted in perfected muscle balance, and in May, 1893, patient reported that all nervous symptoms had disappeared. She had had but one attack of vertigo, without unconsciousness, during the past winter, the only one since the correction.

CASE 13. M. H., April, 1890. Family history: One brother epileptic; father intemperate for past twelve years. Personal history: First had spasms in infancy. At twelve years of age had first epileptic fit; from that time on had about one each year till three years ago, when the fits became very frequent, occurring once a week. Mind good, general health good. At twelve years of age, fell into a cistern, and the following year noticed convergent squint. Patient consulted me for the convergent squint, and accidentally, at the suggestion of Dr. Church, mentioned the epilepsy. Under atropine vision equaled $\frac{2}{0} \frac{0}{0} + 2 \text{ D.} = \frac{2}{2} \frac{0}{0}$ each eye. Left eye fixing, suppression of right image. Three months subsequent to the correction, the patient reported that all fits had

stopped. Tenotomy was made of both internal recti muscles for the correction of strabismus. Fusion of images with glasses, slight convergence without.

June 4, she reported that she had had no return of the fits for one year, and was in good general health, eyes remaining straight. About one year from the time glasses were given, they were laid aside; in a short time fits returned and have continued.

CASE 14. R. J., 1890, was tested for glasses about four years ago, and glasses given. Shortly afterward began having convulsions, continuing in frequency up to date of visit. Under atropine, vision equaled, right eye, + 1.50 ax. 90, left eye — 50 + 1.75 ax. 90. Correction given. Two months later, patient continuing to have fits, examination was made and muscle condition found as follows: Exophoria 2 degrees, under rest prisms both adduction equaled 6, abduction equaled 6. Tenotomized both external recti after drilling muscles to their maximum adduction and abduction giving perfect muscle balance. Two months later patient reported that fits continued, increasing in frequency. I have not heard from patient up to date.

CASE 15. Mrs. C. M. Mc., aged twenty-eight years. May, 1890. Family history good. Had had convulsions in childhood. At about fifteen years of age began to have epileptic fits, one in from one to two months, preceded by aura of colored lights passing to the left, lasting about one minute. Subject to nervous headaches, and pain in back of head and neck. Accepted under atropine + 1. 50. Two months later reported relief from headache, and had had no fits. Muscle condition, esophoria equaled 2 degrees. 1892, patient reported that there had been no nervous symptoms since the correction.

CASE 16. C. T. H., aged thirty-seven. Family and personal history good. Mother had glaucoma late in life. Began at eighteen years of age to have epileptic fits at night, at long intervals to date, occurring usually in the spring and fall. Also attacks of half blindness in the left eye followed by severe pain in head and face, stiffness of head and face and fingers on the right side. Has had little fits very frequently; had pain in frontal region and pressure on top of head, and rush of blood to head. Vision equaled $\frac{3}{8}$. Accepted left eye a + 1.50 sph, + 75. cyl. ax. 90. right eye + 37 cyl. ax. 180. Hyperphoria equaled 1 degree, which disappeared under the use of glasses.

June 4, 1894, patient reports that he has had no return of nervous troubles in any form, and is free from headache.

CASE No. 14 presents additional proof of the influence of the eye upon the production of epileptic fits. It will be noted from the history of this case, that the fits recurred as soon as the glasses were neglected. I also found from questioning my patient, that the headaches which had been a marked feature in her history, returned preceding the fits by some weeks. Another feature in this case is also instructive. The patient was not aware that we expected any result from the glasses other than to relieve the headaches, and was no way impressed with the idea that there was to be any influence from the treatment that would cause cessation of the fits. These facts throw this case out of the so-called strong mental impression.

The tenotomy in this case was only made to secure the cosmetic effects of normal position.

In cases in which I made a tenotomy there was only partial or no relief experienced from the correction of the error of refraction, and prisms of rest were used previous to the operation, and the relief experienced from them favored the hypothesis that the heterophoria was one of the factors causing asthenopia, and the secondary cause of the reflex symptoms.

Eight of the cases selected for treatment have had no return of the fits for from two to six years, or up to the date that I heard from them last. The headaches, vertigo, mental confusion and asthenopic symptoms from which they had previously suffered, were relieved.

Six cases were markedly benefited in a general way, and the attacks rendered less frequent.

One relapsing as soon as the glasses were withdrawn.

One case seemed aggravated in every respect, and would not stay under observation long enough to give opportunity to thoroughly study the case.

One case was in no way benefited by the treatment.

My experience leads me to the conclusion that eye-strain may cause epilepsy, and that every case of epilepsy should be subjected to a careful examination of the eyes and any error corrected. This should be one of the first steps of the treatment.

VENETIAN BUILDING.

REPORT OF SMALLPOX IN COOK COUNTY HOSPITAL.

By EDWARD H. TINEN, M. D.

SENIOR HOUSE SURGEON.

During my service in the contagious ward of Cook County Hospital as assistant to Dr. Baer, who has allowed me to report the following cases, several cases of smallpox of more than usual interest occurred, which has led me to report not only them but others that passed through my hands.

CASE 1. J. J., age eighteen, in obstetric ward. Last menstruation July, 1893, noticed movements of child in November. Her pregnancy uneventful, no disturbance of her general health.

She stayed at the "Door of Hope" during the latter part of February and the early part of March, and while there a child died of smallpox. She was vaccinated for the first time March 12, and March 18 she was admitted to the hospital. She remained perfectly well until March 25, when she noticed papules distributed over the arm near the vaccination which was successful.

No headache or backache, subjectively well throughout the attack. Transferred to ward 17, March 27. Examination. Patient well nourished, tongue clean. There is a marked prominence of the right lobe of the thyroid gland.

Skin. Around the vaccinal wound the vesicles are clustered in great numbers, there is apparently no intervening healthy skin. Over other portions of the body, the vesicles are scattered singly or in groups of four or five, all of them present umbilication; striae gravidarum marked.

Labor began April 5 at midnight; the pains rapidly increased in severity and number until child was born, April 6 at 4:15 A. M.; placenta followed child in ten minutes; slight laceration occurred which was repaired with one stitch. Contraction of the uterus firm and constant. She made an uneventful recovery.

CASE 2. R. J., the babe of the preceding history, born April 6. Babe cried lustily. The eyes were treated with silver nitrate solution, two per cent, and immediately irrigated with boric acid solution.

No apparent papules before cleansing; although the pharynx was injected no vesicles were seen. Three hours later the babe had been cleaned, and at that time two papules were noticed, one on the left knee, the other on the chest, also a few flat, partly distended vesicles on the skin of the triangle of Simon, child was vaccinated on left arm.

In a few hours other papules appeared on face and hands, no implication of the mouth. Babe slept for the first fifteen hours and was put to parent's breast at end of eighteen hours, but nursed very little.

April 7. Slight discharge from eyes ; no vesicles except those already mentioned ; sleeps well ; urinations and bowel movements normal. Ichthyol applied to left leg 30 per cent strength.

April 8. Profuse, papular, and vesico papular eruption ; quite symmetrical ; palms and soles included. Many of the vesicles present slight umbilication ; few papules on tongue and roof of mouth ; child nurses poorly ; bowel movements normal. General condition good ; sleeps well ; child is oiled, and the oil is evidently irritating ; when the ichthyol is applied, causes some pain ; cord drying nicely.

April 9. More vesiculation ; some pustulation present on palms and soles ; has severe hiccoughs.

April 10. Vesiculation has entirely changed to pustulation ; child is quiet ; nurses poorly. General condition very poor ; breathing is weak, shallow and rapid ; many fine râles ; the pulse compressible ; reflexes apparently exaggerated ; bowel movements frequent.

April 11. No cough ; somewhat weaker ; bowel movements often, and yellowish green in color.

April 12. Conjunctiva injected ; nursing quietly, when suddenly he became blue ; the hands became tightly clenched, followed by death at 1:30 P. M.

Post-mortem examination at 2 P. M., one-half hour after death. Lesions still show umbilication. Pleura and peritoneum negative ; pericardium contains a drachm of pale, straw colored fluid.

Heart. Negative, blood has not clotted.

Lungs float, but do not crepitate throughout ; surface mottled ; pale and dark red. Few solid areas, but these do not sink.

Liver. Many yellow punctate spots on capsule ; gall bladder distended.

Kidney. Hyperemic ; capsule peels readily. Stomach, no papules. Small intestines negative.

Large intestine. Many small, sharply cut ulcers, penetrating to the outer muscular coat ; peritoneal surface negative.

Specimens taken from all the organs and hardened in both alcohol and Mueller's fluid. Sections cut by celloidin method. Stains, hematoxylin and eosin ; also eosin and Löffler's blue.

Liver. Cells highly stained with eosin, indicating necrosis. Around areas of cell death no round cell infiltration, hence no regenerative processes; marked dilatation of capillaries and free hemorrhage in substance; the hemorrhages quite numerous.

Kidney. Extensive necrosis of the convoluted tubules, brought out by eosin and blue; congestion of vessels in capsules; leucocytes in the glomeruli; few red corpuscles between glomerulus and capsule; in boundary zone, enormously distended tubules.

Lungs. Hemorrhage into alveoli and smaller bronchi; also areas of necrosis.

Trachea and esophagus. Engorgement of vessels and blood on free surface of mucous membrane.

Pancreas. Necrosis of secreting cells.

Skin. Section through a papule shows changes usually seen in skin eruptions, with beginning degeneration of the center of the papule.

Intestine. No marked changes microscopically.

Tubes of agar-agar and glycerine agar repeatedly inoculated from pus of pustules from the blood from serum of vesicles, and immediately placed in incubator with absolutely negative results.

CASE 3. C. T., aet. two and one-half years. Entered the hospital March 22, with diagnosis of scarlet fever, no temperature, only some swollen glands in the throat; April 9 presents marked desquamation; April 13 desquamation still in progress; April 16, rapid rise in temperature to 104.2° axilla at 4 P. M., was very restless; vomited; pulse of 160, respirations 40, followed by profuse sweating. April 17, eyes dull, no appetite, a papular eruption distributed over body, arms, legs and genitals; tonsils much swollen.

April 18. Papules more abundant, beginning vesiculation on back; on cheeks and legs, several confluent patches of 5 cm. in diameter.

April 20. Well marked pustulation.

April 23. So profuse is the eruption, there is not a square cm. of healthy skin, mucous membrane of soft palate shows a dozen or more vesicles; urinalysis negative to albumin tests, passes only thirteen ounces daily.

April 24. Some of pustules exude blood, while already there are many crusts.

April 26. Crusts have all disappeared from the face, leaving large flat pigmented papules surrounded with a ring of scales. Some pustules still remain on hands and feet.

May 12. Complete recovery. This little patient had a perfect vaccinal crust at the onset of the disease.

CASE 4. R. S., aet. sixteen days. Born March 12, vaccinated on the 13th, typical vaccinal vesicle on the 18th, eruption of variola appeared on the 22d, died on the 2d of April.

CASE 5. K. B., aet. 17. She was vaccinated twice successfully, delivered of a child at full term on March 12, at once developed hemorrhagic variola and died March 17.

CASE 6. S. O., aet. 33. Vaccinated at third year of age, was delivered on March 12, vaccinated the 14th, onset of disease on the 16th, again vaccinated on the 17th, well developed eruption on the 18th, few vesicles and pustules, most of the papules dried into what is known as "horn pox." April 10, entirely recovered.

CASE 7. A. F., aet. 28. Chronic interstitial nephritis with attack of varioloid, vaccinated when a baby, again on admission, complete recovery.

CASE 8. F. B., Developed smallpox two weeks after birth and died on the sixth day of the disease with the confluent form.

The first case of hemorrhagic smallpox was diagnosed as hemorrhagic measles, but from the fact that a man in same ward with him, who really had measles, contracted variola, it is safe to say that this was not a case of morbilli hemorrhagica.

CASE 9. J. B., aet. 30, gave typical history of variola but also presented symptoms of measles, the injected conjunctiva and measly rash. The rash, however, was a permanent one. The nostrils also became occluded after very free discharge.

Was never vaccinated and was a drinking man. Died two days after admission.

CASE 10. J. H., aet. 32. History and examination as above, save that when a child he was vaccinated once. Died three days after admission.

CASE 11. H. R., aet. 44. Same as first, but violent delirium present up to death, which occurred four days after admission.

CASE 12. T. O. Headache and severe sore throat; is a heavy drinker; vaccinated when three years old and eight years ago, both times successfully. Examination. Appears on verge of delirium tremens, many umbilicated vesicles on mucous membrane of hard palate. A profuse macular and maculo papular dark red eruption. Patient was transferred to smallpox hospital.

From case ten sections of liver and kidney were made showing areas of necrosis and free hemorrhages.

Inoculations resulted same as before, negatively.

Of six cases of varioloid two had sore throats. Three had one successful vaccination, two had two, and one had four vaccinations with good results. Two had albuminuria. One of the cases had absolutely no subjective symptoms; could not be persuaded he was a variola patient, although having an undoubted case.

In sixteen cases of variola eleven had sore throat. Ten had one successful vaccination, six had not been vaccinated. Fifteen had albuminuria.

Out of somewhat more than 100 cases seen by me for diagnosis, fully ninety per cent had papules in pharynx and on penis.

Very few cases had chills. Vomiting is frequent. Diarrhea is present in babes and in hemorrhagic cases quite constantly.

The death scene of hemorrhagic smallpox is one ever to be remembered when once seen. The vain struggle for oxygen produces the most violent contortions. The sitting posture is maintained and the patient tears at his throat and tongue, moans piteously in his delirium, until death relieves him from further agony.

At no time was I able to get a culture of any microörganism from the serum, blood or pus.

Prognosis. A very severe sore throat or hemorrhagic eruption makes the outlook very gloomy, while a light sore throat or none at all and scarcity of initial lesions betoken a light attack.

Treatment. Calomel and soda bicarb on admission. The surface of the body kept cool, which prevents desire to scratch and relieves the intense pruritis, also for same purpose Lassar's paste applied, a salicylic acid paste. Tr. nux vomica as general stimulant and for diarrhea bismuth salicylate and enemas of tannic acid solution.

Gargle of peroxide of hydrogen, boric acid or glycerite of tannin.

Nursing. The patient should be given a complete bath daily with an after-sponge of alcohol and carbolic acid solution, which greatly adds to patient's comfort; scrupulous care of the mouth as middle ear disease sometimes follows. Apply masks to face and hands if necessary, especially in children.

The pathological and bacteriological work was carried out in the pathological and bacteriological laboratories at Rush Medical College.

EMPHYEMA.—INDICATIONS—ETIOLOGY—OPERATIONS.

By A. BELCHAM KEYES, M. D.

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The indications in and for the operation are:

First. Pressure dyspnea; sudden deaths have been attributed by Trousseau, in rapidly occurring copious pleuritic effusions, especially when left-sided, to quick movement, or cough, causing torsion of the aorta, due to the displacement of the heart, resulting in loss of consciousness and sometimes death, from interruption of cerebral circulation or quick thrombus formation. Bartels considers that the death in these cases is due to a knicking of the vena cava at its point of passage through the diaphragm, the latter, often being spasmodically contracted during violent cough.

Second. To avoid allowing fluid compression to remain so long as to cause permanent changes in and deposit on the pleural surfaces; resulting in thickening, contractures or adhesions; also changes in the lung substance itself, consequent on long-continued hindrance to expansion, resulting in various degrees of permanent acquired atelectasis. The early removal of a part of the fluid by relieving pressure on the lymphatics, together with the pump-like action of respiration on these vessels, frequently results in complete resorption.

Third. To remove pus as early as possible after the diagnosis is made, by thorough dependent permanent drainage, saving if possible the infection of neighboring organs in the more acute cases, the breaking through the diaphragm into neighboring cavities, or through chest wall and the hectic fever and possible nephritis or death.

Fourth. To avoid the sudden removal of large amounts of fluid in much distended cavities, thereby giving rise to shock, hemorrhage into the bronchi, lung substance and pleural cavity and perhaps death. This ancient law of medicine, is too often ignored in empyema operations.

Fifth. To avoid the unnecessary entrance of air or foreign bodies into the pleural cavity.

Sixth. To observe strict measures of surgical cleanliness in all operations.

Seventh. To aid the return of functional lung activity after operation.

The operations are aspiration with the vacuum bottle or syringe, trocar puncture, intercostal intubation, and rib resection.

Aspiration with the hollow needle, and Dieulafoy or Potain's apparatus is the only operation that is permissible for diagnostic purposes, and where suppuration is absent often the only one necessary.

The trocar does not sufficiently fulfill the indications, it being almost impossible to prevent the entrance of air with this instrument, Lefort, Manuel de Médecine Opératoire, remarks that empyema multiplied under its use, and that the entrance of air was known to be the cause of suppuration, long before the reason for it was understood. Pus was frequently present at the second, and very generally at the third trocar puncture. I would like here to suggest the great possibility of a surgically unclean trocar being the chief cause of the suppuration in these cases, to say nothing of the then incomplete aseptic methods.

The aspirating needle should be well buried in the tissues at the point of election, till the distal opening is entirely covered by the soft parts; now produce a vacuum in the receiver, after this the needle can be pushed carefully onward. Its entrance into the cavity is marked by the sudden filling of the syringe. This precaution makes us aware of the exact distance necessary, avoids wounding neighboring organs and does not permit the entrance of air or foreign bodies and makes us independent of the degree of positive pressure.

Simply raising the arm well above the head will suffice to keep the skin wound from being in a line with the pleural wound.

The tension of the effused material, according to Leyden, is exceptionally -2 or 0 , ordinarily it attains $+20$ and $+28$. It is not alone dependent on the quantity, but is less in the debilitated and aged; greater in young people with resistant thoracic walls, and high blood pressure. Lemoine remarked, that serofibrinous effusions with specific gravity above $1,019$ are favorable cases; those below $1,015$ unfavorable, but to-day we must resort to the microscopic examination, the culture tube, and inoculation for information as to the etiological factors.

Koenig says to consider all cases tubercular, where we find no microorganisms at all, as well as those where Koch's bacilli are present, that proof of tuberculosis is relatively seldom encountered. Empyema is rare after pneumonia caused by pneumocci and staphylococcus; pyogenes aureus is a more frequent cause, while pyemic empyema, due to the streptococcus is unusual.

Netter, of Paris, gives, as a result of 109 cases, the infection

as: streptococcus, 44; streptococcus and pneumococcus, 2.8; pneumococcus, 26.7; staphylococcus, 1.8; tubercular and putrid, 24.7.

Streptococci, he states, can only infect if gaining access in sufficient number, and then only if there is pathological change at some point on the pleural surface, this being often too small to detect. Injections of feeble cultures to the pleural cavity do not infect if this has a perfectly healthy surface. Streptococci can circulate in the blood and cause death, the pleura showing no change post-mortem though containing large quantities of virulent microorganisms.

Koenig, reviewing his own remarks and Netter's, says: The exciting cause of meta pneumonic effusions is first of all from a relatively large number of relatively innocent microorganisms such as Fraenkel's diplococcus lanceolatus, and that Gerhard thinks the frequently occurring resorption of suppurative effusions in children is due to this fact, though Netter's observations make the streptococcus the most frequent, especially after scarlet and puerperal fevers, pyaemia and grippe. Still, according to his (Koenig's) views, the staphylococcus, oftener aureus than albus, is frequently a combination of the different forms.

Lastly, saprogenic microorganisms have been found in a number of cases. The tubercular forms of effusion vary greatly; one time it is purely tubercular, and there are stealthy effusions, mostly purulent, more seldom clear in diffuse tuberculosis. In a number of such cases tubercle bacilli can be found.

Streptococcus empyema often occurs with tuberculosis, and there are many mixed forms, especially in pyo-pneumo thorax. Effusions may be chylous from rupture of a lymph vessel, they may arise from pericardial infection and subphrenic abscesses, breaking upward into the pleural cavity, are not uncommon from the liver, kidney, spleen, perforation of stomach, or duodenum, and one case by Novack from suppurating vermiform appendix; also it is interesting to note that Kelsch reports finding Eberth's bacilli in hemorrhagic, and Fernet in serofibrinous effusions, *Société Médicale des hopitaux*, 1891. Levy also reporting five cases like Fernet's. From the review of opinions of the authorities it would appear to be a matter of some difficulty to decide in every case between serum and pus.

Where unresorbable or purulent effusions are present we have the choice of three operations:

1. Aspiration with or without injection.
2. Intercostal intubation.
3. Rib resection.

In children with less liability of previous pathological changes in lung, greater power of regeneration, greater flexibility of chest-wall, placing a tube between the rib is generally sufficient. Pus should be evacuated over a period of two days, the side being kept elevated, and the opening as securely closed as possible by a copious wet dressing. After the second day, the opening should be kept in the most dependant position. Much less shock is experienced by children, if a portion of the pus is aspirated the day before the operation.

Just where shall we operate? In circumscribed pleurisies we have no choice; also in subphrenic abscesses breaking upward we must choose the point that will give us the greatest advantage over both cavities, making counter openings, if necessary, to drain pleural cavity.

In general unilateral purulent pleurisy, according to Lefort, we operate: 1. In a position sufficiently dependent. 2. To avoid the vessels. 3. To avoid the diaphragm. In France, the rule is, to choose a point between ninth and tenth ribs on left, and eighth and ninth on right side; but as the diaphragmatic attachments are the same on both sides, the rule is not sound, and we can readily understand how by following this rule the aspiration of a hepatic abscess could easily occur. Certainly to operate here is not devoid of risk; I have seen the peritoneal cavity opened by mistake on one occasion.

Laennec pointed out that the position that fulfilled Lefort's three indications best was near the middle of the thorax, fourth to sixth rib. Here the incurvature is greatest, posteriorly at a point between the inferior angle of the scapula, and the posterior axillary line; here with the patient in the dorsal position, we have the common junction and lowest point of three inclined planes extending from lung apex, from diaphragm, and from vertebrae.

The resection of rib is probably to be preferred in adults, especially those with more or less rigidity of the chest wall; having general or local pathological changes in lung substance and pleura or anchored by adhesions. This coupled with the unfavorable conditions for expansion we are about to institute; viz., a collapsed lung, a permanent pneumothorax with atmospheric pressure equal both within and without; instead of the negative within, causing increased lung expansion and the heavier atmospheric, without causing increased chest wall depression.

Thus, in both the tube between the ribs, and the rib resection we have a very much larger space between the collapsed lung and

the undepressed chest wall to granulate up and later on contraction to literally pull in the chest wall to the surface of the lung.

In considering the foregoing facts, we cannot but recognize the glaring deficiencies of the present methods. Cases are on record where recovery has occurred by expectoration through a bronchus opening into the pleural cavity; but this possibility has no more to recommend it than the spontaneous evacuation by an insufficiently large sinus of the chest wall, which in nearly every case has a very tortuous course and demands operation.

Operation. At the point of election, with all due surgical precautions, the patient being anaesthetized, is placed in Sim's, or a modification of Sim's position, according to the side to be operated upon, diseased side uppermost.

An incision 7 to 8 cm. long, directly over and along the middle of the rib to resect, extending through to the bone, severing periosteum; this latter is now carefully pushed off the rib, and separated from it behind, the bone resected; the edges of skin are now sewn tightly down to the pleura, to cover the raw surface, and also to maintain the patency of the opening.

A slight incision is made into the pleural cavity to allow the escape of pus. Should the pressure be very great within the cavity, the tearing open of the incision wider, with dressing forceps, can be deferred till the second or third dressing. The insertion of a tube in this operation is not absolutely necessary.

To siphon off serum gives no advantages over Dieulafoy's aspirating apparatus, and is not free enough for pus.

The dressing of empyema cases after operation is a matter of the greatest importance. Irrigation has its dangers; by it we may unintentionally convert a circumscribed into a general pleurisy, or rupture weakened walls, and infect neighboring cavities, even with lethal issue. Solutions strong enough to have antiseptic effects are liable to be toxic, unless the drainage is perfect. We are dealing in most acute cases with a pyogenic membrane, a granular surface, that requires only to be thoroughly drained to heal; while washing retards it as in any other abscess.

Lefort mentions a case that recovered without irrigation as an anomalous termination of a neglected treatment, and says Moutard-Martin had a like experience. Koenig says irrigation is only necessary so long as the cavity contains putrid material; also in known tubercular cases without pus we can aspirate and inject iodoform emulsion, but if pus be present permanent drainage must be instituted.

The recent experiments reported in the *Semaine Médicale*, where a portion of the fluid was removed from the pleural cavity and injected into the intercostal tissue, resulting in recovery in three cases with tubercular serous effusions, is interesting in this connection.

Among the principal causes of remaining sinus are: nonexpansion of the lung, defective drainage, necrosis of rib, chronic pulmonary foci and carcinoma.

Nonexpansion of the lung appeals forcibly for early evacuation of pus and a careful study of the condition of the lung as to expansion, at and after the operation. The surgeon in charge, from about the fifth day after the operation, should prompt the patient to breathe deeply, and use all the means possible to restore the lung to its natural size.

Various operations of multiple-rib-resection have been devised by Estlander, Schede and others. Berger has done twenty-six thoracoplastic operations, of which ten healed and five were improved. Koenig says, in several of these fistulae the lung was so shrunk against the spine that he failed to bring about healing by extensive operation.

Delorme *La Semaine Médicale*, January, 1894, freely opened the chest wall, freed the lung from the false membranes that bound it in the vertebral gutter; when functional activity was restored at once, the pleurotomy opening being again sutured.

It certainly appears more rational to aim at restoration of function than by the resection methods that as often fail as succeed; often increasing the size of the sinus, always increasing the deformity and perpetuating the incapacitation of lung.

The prognosis of empyema depends, first, on the etiological factor at work. Second, on the time effusion has lasted, either before or after becoming purulent, together with preceding or concomitant changes in lung substance, pleura or adjacent organs. Third, some other concomitant pathological condition other than the thoracic lesion.

Koenig operated seventy-six cases with ten deaths. Schwartz gives the percentage of recovery in Zurich, 71.4, Gottingen, 78.3, Bethanien, 83.3. A showing that brings empyema to a position among the most justifiable of surgical operations.

The cases on which I base my paper are briefly:

One. E. M., widow, age twenty-eight, incomplete abortion, pyemia; diagnosis, abscess of left lung; death; post-mortem revealed two fist-size abscesses, with adhesion of pleural leaves.

Two. E. W., male, age seven, broncho-pneumonia following measles; intercostal intubation performed in posterior axillary line. The pus evacuated itself; tenth day, temperature 103.5° ; twelfth day, sudden discharge of about $\frac{3}{4}$ iv. of pus, after which the temperature remained about normal. The case was washed and has only entirely healed after fourteen months, being retarded by necrosis of ribs in the region of tube, and abscess of the chest wall. This case showed no signs of resorption after five weeks duration of the empyema.

Three. M. R., female, age two and one-half, left-sided empyema following broncho-pneumonia; intubation preceded three days by aspiration. The dyspnea in this case was excessive. After inserting tube it was plugged with gauze and a large wet dressing tightly applied and pus slowly evacuated. No irrigation; tube removed fifth week.

Four. W. J., age twenty-seven, admitted with signs of changing dullness and spitting large quantities of pus; diagnosis, right-sided empyema; intercostal intubation; recovery rapid; discharged cured seventh week.

Five, six and seven showed nothing of particular interest other than usual. The operation in these was done in the posterior position, proving the superior drainage facilities in this situation.

Eight. A. J., Bohemian, showed three fistulae of thorax which had been assiduously poulticed; rib resection in posterior axillary line; recovery in twelve weeks.

Nine. E., German, gunshot wound of thorax; left-sided empyema; resection of rib was followed by discharge of a quart of fluid and clotted blood; death in four days. Post-mortem revealed empyema of right side also.

Ten. A. B., female, age eleven years; seen in consultation by the kindness of Dr. W. K. Harrison. His diagnosis was empyema; needle drew off pus. The following day the tube was inserted in the posterior axillary line and parents instructed how to dress. The recovery was uninterrupted. On opening the chest cavity about an ounce of serum was evacuated before the pus was found, evidently a circumscribed cavity near the left mammillary line, though dullness extended throughout as high as fourth rib, but was not changed by change of position.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH.
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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Society Proceedings.

THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held May 21, 1894, at the Schiller Club.

President Senn in the Chair.

The minutes of the preceding meeting were read and approved.

The Committee on Membership reported favorably on the applications of Drs. L. W. Whitmer, 1508 School St.; L. W. Dudley, Mercy Hospital; H. T. Worthley, Mercy Hospital; and Alvin V. Cole, 2459 Wentworth Avenue, and on motion the Secretary cast the ballot of the Society for their election.

The applications of Drs. R. H. Harvey, H. B. Favill, W. O. Nance, J. H. McKinlock, C. D. Bradley, J. M. Jacobs and J. A. McKinley were read and referred to the Committee on Membership.

Dr. D. W. GRAHAM exhibited a case of

CONGENITAL BILATERAL DISLOCATION OF THE ANKLE JOINT.

The subject of

EXTERMINATION OF SMALLPOX IN CHICAGO,

was presented by Drs. Wm. E. Quine and A. R. Reynolds. See page 1.

Dr. A. R. REYNOLDS, Commissioner of Health: We started out to vaccinate every body in a week but we soon found that it would require such a large number of vaccine points that they

would in all probability be carelessly prepared and our vaccination unsuccessful. We have about four hundred people now vaccinating and that at present will consume all of the supply of vaccine virus that can be relied upon. I know that the majority of vaccine virus is good; we get it fresh and when a little box containing ten points is opened it is all used within a few minutes; we have some failures but they are small in number compared to the number of successful vaccinations.

Where smallpox has existed in anything like an epidemic form it has been confined to the radius of a few blocks.

Some wards have been gone over once and are now being gone over again for revaccination, as some people are found at home at night, some in the daytime and some on Sunday.

A patient having hemorrhagic smallpox following evidence of vaccination, supports the argument of Dr. Quine that the motions of vaccination alone are not all that is necessary. We may have a typical scar, but not vaccination, the scar may be produced by some outside poison, not by the vaccine virus. The school children, both public and parochial, have been vaccinated and revaccinated, two hundred thousand of them who required it. In this connection I may say while all the children in the public schools had certificates of vaccination the evidence of successful vaccination was not upon the arms and it was plain that physicians had granted those certificates without proper care and examination.

It is our rule to wash the arm with soap and water; we do not use alcohol or any disinfectant as the disinfectant might remain and destroy the vitality of the virus. It has been our custom to vaccinate at three points, making a small point the size of a pin head, but lately the vaccination is generally done by making one scarification, two lines side by side, and we find it makes a good vaccination and protects.

Disinfection of premises I believe is necessary. The first considerable smallpox we had was in the lodging house district, and it was entirely removed from there within three weeks; some scattering cases occurred from that infection for perhaps six weeks. If it can be removed from the lodging houses, I see no reason why it cannot be removed from the other districts, and I am sure it can be and is being removed, and I doubt very much if we ever again in this city have as much smallpox as we have had this month.

We have in the past six weeks furnished and equipped quarters for eight hundred patients; we have ample quarters to care for everybody. We have at present 286 patients in the smallpox hos-

pitals ; there are still a few in the homes; those, however, will be gotten out in the next two or three days, except those who are convalescent and will perhaps be well in a day or two.

In disinfecting the houses it is our plan to saturate everything with a bichloride of mercury solution of the strength of one to five hundred. Loose fabrics that can be gathered up, sheets, etc., after being saturated with bichloride of mercury are hung up on lines ; chairs, bedding, carpets and other furniture are saturated with the bichloride solution, and after that we burn sulphur in iron pots contained in tubs of water; the common sulphur of commerce, three pounds to each thousand cubic feet of air space. The burning of this sulphur in the presence of this amount of moisture, seems to be sufficient to thoroughly disinfect the premises after smallpox. Smallpox does not follow our disinfection.

I do not know whether it would be possible to destroy smallpox without vaccination or not, but it would be folly to try. I believe they ought all to be removed at once to the hospital, and the house disinfected immediately.

Dr. J. H. HOLLISTER: Some things have been demonstrated to me very clearly and of these I may speak briefly. First, the point referred to by Dr. Quine, that of the perfect protection or immunity vaccination affords to communities and individuals who may be exposed to smallpox. For instance, in 1858, when I was a demonstrator of anatomy in Rush Medical College, a subject was brought into the dissecting rooms that had evidently died from confluent smallpox. Vaccination was immediately performed on all who could possibly have been exposed, with the result that not one case of smallpox occurred, although at least twenty of the students seemed to be susceptible as shown by the vaccination sores on their arms.

The square between Randolph and Washington on Elizabeth Street was vacant, and opposite that, facing the north, there was a frame house in the upper room of which, for more than a year, a lady had been confined as an invalid. She had not left her room, and no one had visited her except her physician and the members of the family, when she broke out with a typical form of smallpox. It was a serious question how this could possibly occur. I have never known a parallel case. Careful inquiry led me to the discovery that fourteen days previous her windows were open toward the vacant lot, and upon a foggy night a fire, which was at least 700 feet distant from this house, had been noticed in the center of that square. The nurse and patient both said they suffered

material discomfort from the smoke which blew upon them through the open windows. On careful examination of the remains of the fire some charred fragments of cloth were discovered, and it seemed probable that some bedding, which had been used by a smallpox patient, had been carried out there surreptitiously and consumed and the contagion had been carried in the air.

As to the view expressed by Dr. Quine that we may protect the community by vaccination, the fact remains just now that they are not vaccinated, and with the want of knowledge of the men, women and children in this great metropolis, a large percentage of whom are susceptible to the disease, what are we to do? It has occurred to me that a personal surveillance of this entire city is the essential thing at this time, and that this immense work, which no one can appreciate until he begins to arrange for its development, can hardly be accomplished except by a division of labor.

I believe that within two weeks a division of territory could be made, and in from five to eight days every house be personally inspected and inquiry made about the health of the family and new arrivals, and as far as possible whether the persons are vaccinated and whether there are any sick persons in the house.

Dr. MAYO, of Minnesota: One great difficulty Prof. Quine has mentioned is the quality of the vaccine virus, and it is one that I have met with frequently. I have bought sample after sample and have often met with misfortune in my patients not being vaccinated. It suggests to my mind that sixty years ago all vaccination was done directly from a child's arm. We seldom had failures, and I have never known a death to follow it or any evil results come from it. It occurred to me that with the difficulty of getting pure vaccine virus from the cow, and under the necessity that now exists in Chicago, there could be no serious objection to adopting this old method for a time.

Dr. C. H. WILLIAMS: Dr. Quine mentioned the fact of the necessity of saturating the system. I have in mind a case which shows that occasionally that may not be done. A student, while we were at school, died of hemorrhagic smallpox, the third attack, showing that the previous saturation of his system was not sufficient to prevent him from taking it again. Of course, this is no argument against proper vaccination, but goes to show that in rare cases there is such susceptibility to smallpox that even with vaccination and protection they may contract the disease. One point I wish to call attention to, the authorities of the city and State

could get a good deal of assistance from large employers of labor. On the C. B. & Q. R. R. last January we vaccinated about fifteen hundred of their employes in Chicago, and we are now vaccinating about two thousand men at Galesburg, and six hundred and fifty at Aurora, and as there has been a little outbreak of the disease at Atchison, we will probably vaccinate the men at St. Joe. I would like to ask the health officers if they can suggest the best method of making vaccinations? It is a very simple operation, but it is often carelessly done, and a good deal of the unpleasant aftereffects can be avoided by taking pains. For instance, washing the skin with absorbent cotton and alcohol, dipping the point in distilled water and having the open cut covered with adhesive strips to prevent contamination. When you vaccinate working people you will find the skin dirty, and the clothing which is pulled down over the arm is apt to be soiled and sweaty.

Dr. J. W. SCOTT, Secretary State Board of Health: In undertaking the suppression of an epidemic of smallpox it is very generally understood that the only reliance is in vaccination. It would be of interest to this society to hear what other measures are now being taken to prevent the spread of smallpox. I know something of what is being done personally, and I believe effective measures are being taken by our Commissioner of Health.

Dr. ADOLF GEHRMANN: I would say that I have made quite an extended examination of vaccine points that I bought at different times from different growers, and different handlers in the city. I used a method of examination somewhat like the method Koch used in preparing his first pure cultures. Taking solid agar agar, I streaked the points across the surface and found that a large majority contained bacteria of two varieties. First, those which may be classed as coming from atmospheric contamination, especially during the packing of the points. The other class of bacteria I found came from taking the points at too late a period from the the vesicle, that is, pus contamination. In some cases wherever the points touched the solidified surface of the agar agar, colonies of pus bacteria resulted. The majority I found to be staphylococci, but in other cases there were saphrophytic bacteria.

Dr. W. E. QUINE: One of the speakers raised the question as to the propriety of substituting humanized virus for bovine virus, on the ground that humanized virus is more certain in its operation. It is absolutely true that humanized virus is more reliable in point of uniformity of strength than bovine virus. It has been shown by the observations of Loomis, of New York, that humanized

virus is successful in 98 per cent of primary vaccination, and bovine virus in only 78 per cent. There is another very important point in favor of humanized virus, namely, the advantage of having at your hand a force of known activity, for if you have used a particle of the crust demonstrated to be active, you are on safe ground when you assume that the remainder of the crust possesses the same degree of activity. The only considerable objection to the use of humanized virus is the liability to the communication of syphilis through its agency. Trosseau alludes to instances in which he vaccinated a perfectly healthy looking infant, and with great eagerness sought for and obtained the crust that appeared upon the arm of that infant and used it in the vaccination of numerous other persons with the effect of producing a social calamity to the extent of causing an eruption of syphilis in not less than two hundred persons, directly attributable to this one infant. The fact that it is possible to communicate syphilis through the agency of humanized lymph is a sufficient objection to its employment.

Some reference has been made to the importance of isolation. I freely admit that every rational means of combating an epidemic of smallpox should be brought into very active requisition during an epidemic of this dreadful disease, but in the parts of the city in which smallpox prevails most extensively isolation and quarantine are well nigh if not absolutely impossible. You may put a police officer at the front and rear of a house and even if they keep awake every minute of the time, in such communities it is possible for people to step from one house to the next and go a block without putting their feet on the sidewalk at all, or from the roof of a house gain access to neighboring houses without going into the yard or street.

The question has been raised as to the expediency of supervising the propagation, collection and preservation of bovine lymph. That is one of the most important questions to be considered in connection with the proposition to compel vaccination, for before the State or city could insist upon vaccination they must be in a position to furnish absolutely pure vaccine virus, with absolutely no liability to extraneous infection of any kind. When this is done, and it can be done, compulsory vaccination may be insisted upon with some show of propriety. It would not be very difficult for a central authority like that of the commissioner of health of Chicago, or the State Board of Health, to assume control of the proposition even to-day. Let the commissioner of health procure his virus from a certain establishment and let him have his agent

on the premises of these propagators to inspect every heifer, to watch the process of the production of every vaccine point, this agent of the health commissioner to be on the premises of the propagator at the expense of the propagator, so that the commissioner of health may put the stamp of his official approval upon every point that issues from such a vaccine farm.

While there is no doubt as to the utility of isolation, quarantine, fire and other means of disinfection and means of diluting the poison, still the experience of the medical profession in all parts of the civilized world is substantially to the effect that thorough vaccination and revaccination is after all the force that arrests an epidemic of smallpox and the epidemic keeps on and on until susceptibility is exhausted either by the occurrence of smallpox generally throughout the community or by efficient vaccination.

Dr. S. W. BURSON read a paper, see page 34, entitled

A SUGGESTION ON THE TREATMENT OF CONFLUENT VARIOLA.

Dr. T. J. SULLIVAN reported a case of

OVARIAN CYST

and exhibited the specimen.

There were in attendance 125 members and visitors.

On motion, the society adjourned.

JUNIUS C. HOAG, Secretary.

A regular meeting was held June 4, 1894, in Commandry Hall.

President Senn in the Chair.

The minutes of the preceding meeting were read and approved.

The Committee on Membership reported favorably on the application of Drs. H. B. Favill, 138 Pine Street; R. H. Harvey, Mercy Hospital; Chas. D. Bradley, 131 Dearborn Avenue; John McKinlock, 34 Washington Street; Willis O. Nance, 302 Garfield Boulevard; John M. Jacobs, 1018 Wellington Street, and John A. McKinley, 526 Wabash Avenue; and on motion, the Secretary cast the ballot of the society for their election.

The applications of Drs. W. A. Evans, Cornelius Mackey, Chas. F. Brown and J. F. Choatal were read and referred to the Committee on Membership.

Dr. MAURICE KRAUS exhibited a patient presenting

MULTIPLE GUMMATA.

The patient, a native of Chili, aged twenty-seven years, ap-

peared at my clinic at the Post Graduate Medical School last Friday, with the following history: In September 1889, he acquired a chancre on the right lip near the corner of the mouth. It spread along the lower border and inner surface of the lip upward; the resulting scar is still apparent. This chancre disappeared after a period of six weeks, the submaxillary and sublingual glands were much enlarged, particularly was this true of those upon the right side. Although the physician in attendance told the patient that the sore and enlarged glands were the result of gastric disorders, he touched it with nitrate of silver. One month later he noticed a marked loss of hair, particularly in the temporal region. In the year 1890 there appeared a number of sores around the anal opening which were very likely condylomata lata. As the patient was compelled to ride on horseback a considerable time the condylomata became irritated and a physician gave a diagnosis of secondary syphilis. Inunctions were employed and iodoform applied locally. During this course of treatment there appeared syphilitic plaques in the throat and on his tongue and lips. The patient had lost about thirty pounds in weight. In the year 1890 the condylomata lata reappeared; in 1891 and '92 he had more plaques upon the tongue. In October, 1893, he had a gumma on the dorsum of the left hand, eight days thereafter there appeared a gumma upon the glans penis near the corona. This underwent a process of ulceration, leaving a scar which is exceedingly interesting, inasmuch as there is a central opening or depression through which a probe can be passed and moved around freely, showing the space once occupied by the gumma. It is however, completely free from any ulceration at the present time.

About three weeks ago he first noticed same nodules or lumps in his tongue which gave him some trouble and pain while eating. When I examined his tongue a few days ago, I found in the median line, a hard growth about the size of a hazel nut, covered with a yellowish white deposit and the surrounding tissue was very livid. It was painful only upon pressure. There was some excoriation on its posterior aspect, but pressure caused no discharge. At the present time there are several excoriations. It is somewhat smaller, and has lost some of its firm, hard consistency.

Dr. HENRY GRADLE read a paper entitled,

A CLINICAL STUDY OF REFLEX NEUROSES.

Dr. J. E. COLBURN read a report, see page 35, of

CASES OF EPILEPSY AND EYE STRAIN.

Dr. E. L. HOLMES : It is unnecessary to dwell on the fact that headaches and discomfort in the eyes are usually relieved by the use of glasses which neutralize uncomplicated hyperemia and astigmatism.

There is an important class of patients who follow sedentary occupations, take little exercise, suffer from nervous dyspepsia, who use their eyes continuously on close work, and who suddenly present symptoms of asthenopia, headache, and other remote disturbances.

Again, patients who are compelled to watch with the sick under circumstances which cause great anxiety and loss of sleep ; those who suffer from extreme grief and incessant weeping, with impaired nutrition, who are finally overcome with nervous prostration, not unfrequently furnish examples of disturbed equilibrium of their ocular muscles. This may continue long after the general strength has been restored, and may require great skill in treatment. Patients will often suffer from this condition, in whom it is difficult to trace the causes.

It is worthy of note that the discussion of this subject, headaches and other nervous symptoms, produced by disturbed equilibrium of the recti and oblique muscles, is confined almost absolutely to American ophthalmological lectures. It is scarcely mentioned except with ridicule by English and European authors. I exclude, of course, in this remark, ordinary insufficiencies of the external and internal recti, which have long claimed attention in our best works. Many American specialists on the other hand claim that foreign practitioners neglect to investigate these conditions.

Although most brilliant results in relieving headache and other serious symptoms have followed tenotomy and the use of prisms, and great discredit has been brought upon this procedure on account of the exaggerated reports of results which very wise and experienced authorities refuse to believe. It is certainly difficult to comprehend how any of these cases require ten or fifteen, and even more operations. Disastrous results have followed these repeated tenotomies even when performed by skilled specialists.

Dr. BOERNE BETTMANN: The etiology of reflexis in general is almost unknown to us, but we do know that these reflex troubles are transmitted through the nerves. Oculists have been trying for years to group these various symptoms known by the term of asthenopia, to arrange a certain number of these symptoms, to classify and attribute them to certain troubles. We have a group

of symptoms known to originate in a disturbance of the accommodation called accommodative asthenopia; another group due to errors of refraction; another group to insufficiency of the muscles, known as muscular asthenopia; then that group known as anesthesia or hyperesthesia of the retina termed nervous asthenopia; and another group sometimes originating in pathological changes in the nose, called reflex troubles, originating in the nose; and last but not least that group occurring in neurasthenic individuals resulting from trauma, as after a railway injury, or blows on the head, or concussion of the spine; these are characterized by concentric limitation of the field of vision, not only for white but for colors.

It was about eight years ago when Stevens published his celebrated monograph, which received the prize in Belgium, that the world was startled by the statement in his book, that hemiplegia, lunacy, epilepsy, chorea, and other affections considered as reflex in their origin, could be cured by the cutting of the ocular muscles, a partial tenotomy of the recti muscles. It is well known that the New York Neurological Society investigated this subject, appointing a committee of five, who gave Stevens a number of cases and about a year's time in which to produce his cures, but he did not succeed and the Neurological Society brought in an adverse report. Since that time this craze of partial tenotomy of the muscles has spread like wildfire over the United States, and harmless recti muscles are constantly being cut. As Dr. Holmes has stated, those following the literature of the world in ophthalmology will have made the observation that the Germans have nearly ignored the subject, and that the French and English have paid little attention to it.

During the last eight years I have examined carefully all cases coming to my office having symptoms of asthenopia and requiring glasses. I can safely say I have examined at least three thousand during that time and I have never found a single case where it was necessary to make a partial tenotomy. That a partial tenotomy should have any effect on the muscle I think is absurd. You might as well cut part of the traces which hold a horse to a wagon in order to diminish the effect of the traces; you will not do it. You might say these traces are thick leather while the muscles are muscular fiber, but you must take into consideration that if you buttonhole these muscular fibers they reattach themselves to the eyeball and connective tissue forms which reattaches the divided fibers and makes the muscle stronger than before.

We know that errors of refraction will lead to reflex troubles. We also know that errors of accommodation will lead to reflex troubles. If oculists would correct these troubles then attend to the general condition of the patient, send him to a general practitioner, in the majority of cases we would have better results and there would be no necessity of making partial, or any tenotomy of the muscles.

I wish to call attention to the great number of these tenotomies that are made. I recall the case of a school teacher who had been operated upon sixteen times. She was first operated in Chicago and a thorough tenotomy made and the result was that the exophoria which had existed before developed into a decided esophoria, her eye turned in; another oculist tried to correct this and the eye turned up; the next oculist corrected that and it turned down and so it went until this poor teacher had her mucous membrane so cut up and covered with connective tissue that it was absolutely impossible to do anything for her. If the general condition of the patient is observed, far better results would be obtained than by partial tenotomy of the recti muscles.

Dr. ARCHIBALD CHURCH: I am very glad we have had the able, comprehensive, and judicious paper of Dr. Gradle because this is preëminently a subject that requires close limitation. We are dealing with unknown quantities from first to last. The neurosis of to-day, to-morrow may be a specific infection. Chorea, of which our friend in the East cured a hundred cases, one after the other, as reported by him to the Belgian Society, and for which he received a distinguished prize, if we are to believe the recent experiments and reports from Italy, confirmed by a number of experiments in this country, is a specific infection and not a neurosis, consequently the reflex attitude adopted by some in its consideration falls to the ground. The very term "reflex", in this connection, calls for a great deal of circumspection. Its physiology, pathology and anatomy are unknown.

Every case must be individually considered. The main underlying neurotic condition may be of an hereditary character, or it may be that the nervous forces of the individual are capable of carrying on the functions of life in a normal manner to a certain point beyond which, if some peripheral irritation be in the field, they are no longer able to perform these functions with smoothness, and there is an explosion. If this extraordinary influence can be removed the condition is as it was before the appearance and removal of the peripheral irritation. You have an

unstable quantity and the occurrence of any extraordinary demand may upset it.

Dr. J. E. COLBURN : I want to call attention to case No. 16. Mr. H. had been having fits from the time he began doing certain kinds of work, especially at the seasons of the year when a greater amount of work was demanded. He has been using glasses for three years, and during that time has had neither big nor little fits.

Regarding the attack made on graduated tenotomy : I do not stand here to either champion or discredit the operation for heterophoria or the operative treatment of muscle errors. I know this, that in spite of what Dr. Bettman, or any one else may say, graduated tenotomy can be made so that from one to ten degrees of displacement can be accomplished by a partial tenotomy.

Dr. HENRY GRADLE, in closing the discussion, said : I tried to condense what little I knew on the subject in this paper, and can hence add scarcely anything more. I feel very much gratified to find so high an authority as Dr. Church is in his field, taking practically the same view that I do of the subject, but from another side of the question.

I began my studies essentially from the examination of peripheral organs which start such neuroses, while Dr. Church, who probably sees more of these cases from a different point of view, has arrived at similar conclusions. Because a certain form of trouble may be due to a reflex in one case it is no evidence that we should always look for a reflex source in other cases of the same trouble. A headache may be due to eye strain, and a headache very similar in character may be due to nasal trouble ; but headaches are also caused by digestive trouble and kidney disease, and many other conditions which are in no sense of the word a source of reflex irritation.

I tried to limit myself strictly to the term reflex and adhering to that excluded all conditions that did not come under that head. I have pointed out that there is a vast difference in the conditions requisite for the production of neuroses in different persons. In some the neurosis, or nerve symptoms, depend upon a peripheral cause, in just as precise a manner as the action of the telegraphic instrument at the receiving station depends upon the touch of the operator at the sending station. Take for instance a few of these cases of epilepsy due to peripheral cicatrices, and whenever these were touched the epileptic attack occurred ; when they were extirpated thoroughly the disease did not reappear during the lifetime of the

individual, or during the time the patient was under observation by careful recorders. So in the case of eye symptoms, there are many instances where headaches of the patient continue until he gets glasses and then they disappear and never come back, unless he breaks his glasses. These are the most typical cases. There are others where the peripheral cause itself is not sufficient to start a reflex neurosis unless concomitant influences aid in breaking down the resistance of the nervous system.

I tried to point out some of these assisting influences. So far as my observation goes I must admit there is a gradual scale from the most typical cases to the atypical ones in which undoubtedly we have a peripheral origin, but where the removal of that origin no longer relieves the patient to the extent of stopping the trouble, where the nervous centers are in a state of unstable equilibrium and when once thrown out of gear remain so. But this is the other end of the scale, and it is a question whether these cases come under the head of reflex neuroses or hysteria. I tried to make some distinction between the two groups.

I did not refer in detail to the peripheral sources of irritation, as that would have caused an undue extension of the paper, and as all who have taken much interest in the subject have seen or read of typical cases from one or the other source. Cases of refractive origin are plenty; ametropia is often alone sufficient to produce nervous disturbance, although in some cases even a high degree does cause them unless the patient breaks down from other influences. It has not been my experience to have seen much annoyance of any kind produced by the lowest measurable errors of refraction which some observers claim as the cause of frequent disturbances.

I have likewise taken a skeptical stand as to the influence of muscular anomalies; I am very skeptical as to low degrees of heterophoria sufficing to produce these disturbances in individuals who are not hysterical, because low degrees are of such constant occurrence and persons with vigorous eyes will not break down, in the majority of cases, where there is slightly imperfect balance of the muscles.

Besides the eye, ear and nose there are other sources of irritation. In my own practice I have tried to keep track of intestinal disorders, and a very cursory review of the literature has shown me that the pelvic organs are by no means harmless in the production of reflexes. On the other hand, the difficulties of removing disease readily in the intestines and pelvic organs is such that it is

not easy to draw conclusions in these cases, but I would remind the audience that in spite of the general concurrence of opinion that there are frequent cases of nervous trouble due to ovarian and uterine disease; so high an authority as Weir Mitchell has declared that he has never known a genuine case of epilepsy cured by the removal of the ovaries or appendages.

Dr. NORVAL H. PIERCE read a paper on

SYPHILIS OF THE NOSE, WITH CASES.

Dr. JOSEPH ZEISLER: The subject of nasal syphilis is one of interest alike to the rhinologist and to the special practitioner, who sees a great deal of syphilis in its different forms and stages. I would like to call attention to a few facts in this connection. First, to the peculiarly slight subjective symptoms which nasal syphilis sometimes causes the patient. It has been my lot to see several cases where large defects of the septum existed without the patient's knowledge. It would not have been possible to say that such defects were due to syphilis if it was not for the fact that coexisting dermal lesions pointed it out. Only recently I saw a lady with a very characteristic specific psoriasis on her feet, and at the same time she had an enormous defect of the septum, about which she had known nothing at all up to that time.

As regards the diagnosis there seems to be little difficulty as a rule. The experienced clinician will always differentiate syphilis from lupus or tuberculosis very easily. The fact that lupus rarely if ever attacks the bony structure is a strong point; besides, in lupus, extensive formation of granular tissue is much more marked than in syphilis.

As regards the treatment, I should have liked to hear emphasized more strongly a point which seems to me of great importance. I have no criticism to make regarding the treatment outlined, but it seems to me every occasion should be used to call attention to the great advantage of giving local treatment in the first place, rather than constitutional treatment. I am not speaking against constitutional treatment; it has its place in every stage of the disease, but in ulcerative syphilis of the nose, where destruction is imminent or when any other important organ is endangered, we should not wait for the constitutional effect of remedies, because they come too late to save that organ, and in such cases local treatment is absolutely of more importance, and should receive chief attention. I did not hear Dr. Pierce mention the use of the time-honored nitrate of silver stick, which in my

hands has always done everything one could expect in a case of syphilitic ulceration. Nitrate of silver caustic arrests syphilitic ulcerations more promptly than anything else I know of. When syphilitic ulceration occurs on the outside this treatment can be wisely and safely associated with the use of a well adhering mercury plaster. In the case of the nostrils, aseptic sprays may be profitably employed.

Dr. W. E. CASSELBERY: We are indebted to the essayist for an excellent paper on a varied and important subject. There is but a single phase of the subject on which I wish to say a word. It is the hereditary aspect of the disease. The number of small children whom we see with deformed noses, saddle-back noses, ulcerative, destructive and cicatricial adhesions of the ala, vellum palati and posterior pharyngeal wall, with adhesions of all forms and ulcerations of every description from the anterior nares to the oropharynx is a frightful commentary, not only on the immorality of the times, but also on the deficient diagnostic skill and tendency to neglect which prevails in the early stages of the disease.

It is interesting to study the period at which hereditary syphilis may become manifest in the child, and opinions differ on this subject. Some assert that it always commences in early infancy, often absolutely at birth or before, and if not apparent until later in life it is simply because it has run a slow course and has escaped earlier observation. There are others, and I agree with them, who maintain that hereditary syphilis may manifest itself at almost any period up to adult life. Gerber, who has written exhaustively on "Late Forms of Hereditary Syphilis in the Upper Air Passages" places the period as late as thirty years. But there are two periods at which the disease is particularly observed; immediately after birth or within the first year, and about the time of puberty, and one should be on guard especially at these times so that severe attacks of coryza, especially when of a purulent nature, and with excessive stoppage of the nostrils occurring in young infants may receive thorough treatment, and the same when occurring later in the course of the child's life. I would urge, if the child be old enough, that pains be taken to examine the interior of the nostrils. It is not always necessary to look far back; the cartilage of the septum is almost always attacked early, and either gummatous infiltration or commencing ulceration will be observed there or in the velum palati especially at the point where the soft palate joins the palatine process of the superior maxillary bone. Then if the patient be placed at once

on antisymphilitic treatment those frightful ravages will be prevented.

Just a word concerning the treatment both of this phase of the subject and of the general disease. Dr. Zeisler has pointed out the importance of local treatment. I would not say a word against local treatment; its importance is evident, particularly the use of thorough cleansing measures, but I assign to the constitutional treatment of nasal syphilis the same importance as I do in the treatment of syphilis in any other part of the body. I have seen circumscribed gummatous infiltrations in the velum, the posterior pharyngeal wall, and the cartilage of the septum nasi, literally melt down under the influence of potassium iodide, in cases where there was little opportunity to make frequent local applications, as in dispensary practice, so that I know that potassium iodide, even alone, and better still combined with some form of mercurial medication is powerful in this direction. I wish to command also the local use of nitrate of silver, that Dr. Zeisler has mentioned; it is my favorite application in both secondary and tertiary, or late manifestations of syphilis. It aids in promoting prompt cicatrization of ulcerated areas.

Dr. Bayard Holmes introduced a resolution calling for the appointment of a committee of three to be charged with investigating the condition of all smallpox hospitals in the city and the accommodation and care of patients in them, the food, nursing, treatment, method of discharge, death rate and all other facts of medical and social interest, the committee to report at the next and each succeeding meeting of the society until they be by this society discharged.

On motion, the above resolution was adopted and Drs. Bayard Holmes, Sarah H. Stevenson and Charles Wagner appointed as such committee.

EXHIBITION OF SPECIMEN.

Dr. A. J. OCHSNER: I wish to exhibit this specimen while it is fresh; the microscopic slides of the tumor I will demonstrate when I present the patient.

The specimen consists of a sarcoma that is attached to the spine of the scapula, and another tumor of the same variety, attached loosely to the capsule of the joint not involving any bone.

Both tumors were first noticed three months ago, when they were about one-third the size they are at present; the one attached to the joint is as large as an orange; the one attached to the spine

of the scapula is about three times as large. I saw the patient for the first time about five weeks ago, at which time these tumors were about two-thirds their present size, so that the growth has been very rapid. The consistency of the tumors is semicartilaginous, that is the greater portion of the tumor is composed of cartilaginous tissue interspersed with bony substance. The lower portion of the smaller tumor seems to be almost entirely composed of bony substance, while the upper portion of the larger tumor seems to be composed chiefly of a soft structure, which is sarcomatous. At the center of the larger tumor you will find a soft point where it has undergone colloid degeneration. I have not placed this specimen in alcohol as I wished to preserve the appearance of the growth, and I have not removed any of the tissue, so that the relative position of the tumors to the part might be shown. It is well known that malignant tumors of the scapula attached to the ligaments of the shoulder joint always return unless the scapula, and at least a portion of the clavicle are removed. This specimen shows that there is considerable distance between the growth and the portion of the patient which remains, so that in this case it is to be hoped he may remain free from a recurrence. In a previous instance in which I performed this operation, about three years ago, the patient is still free from a recurrence which encouraged me to perform the operation in this case.

On motion, the society adjourned.

JUNIUS C. HOAG, Secretary.

CHICAGO PATHOLOGICAL SOCIETY.

*Annual Meeting in Rush Medical College Laboratory Building,
May 14, 1894.*

Meeting called to order by President Patton. The minutes of the previous meeting were read and approved.

The censors reported favorably on the names of Drs. D. Lee Shaw and Bertha M. Bush, and on motion, the Secretary was instructed to cast the ballot for those applicants for membership in the society. The ballot was so cast and they were declared members.

Dr. E. P. MURDOCK presented a new device for the generation of ozone.

Prof. GUSTAVE MONRATH read a paper on

THE PRODUCTION OF OZONE BY ELECTRICITY

and exhibited drawings.

Dr. H. M. THOMAS: I have made some considerable experiments in the use of ozone for local medication of the nasal, pharyngeal and pulmonary passages but the results have been unsatisfactory; I think not so much from lack of efficacy in the agent as from my inability to control it.

The paper and the photographs presented to-night seem to mechanically clear up that part of the subject. It appears to be a feasible way by which ozone can be generated in definite quantities and through dilution a specific amount applied to the nasal pharyngeal and pulmonary mucous membrane. In the ordinary ozonizer put upon the market in the effort to make commercial use of Marchand's peroxide of hydrogen, we get too much of that agent and hence it causes a capillary hemorrhage which in turn tends to break down the deeper structures underlying the capillary blood supply. I am inclined to believe, however, that we should go very slowly in the medicinal use of ozone. It is so powerful, such an intense germicide and its possibilities of producing inflammatory action are so great that at the present time we are certainly very far from knowing its proper place in medicine.

Dr. F. B. EARLE: I would like to ask Dr. Murdock if he has made any experiments with the use of ozone in diphtheria?

Dr. E. P. MURDOCK: No; the only experiment I made with diphtheria was with the culture in laboratory work; I was quite successful in destroying the germ. But the difficulty has been all the way through in not having a reliable generator; in both the clinical work and laboratory experiments there has been uncertainty as to strength of the ozone, or whether ozone was produced at all. In my work I have depended entirely upon the apparatus in the Northwestern Electric Light plant, in Custom house Place. We have a 500 horse power engine and I have used the dynamos there; we use the high tension current and it is a little dangerous to handle. In cultivating the diphtheritic germ I found it could be destroyed by passing through it a current of electricity.

A point suggested by Prof. Monrath seems to me of considerable importance, that is passing a current of ozone over the diphtheritic membrane in the early stage because of the affinity of ozone for the alkaloids. The production of the alkaloids by bacteria, in diphtheritic membrane is in all probability the direct source of

septicemia. Most patients with diphtheria die of blood poisoning, the product of the germ, and not from the germ itself, and if this can be reached in the early stage by the inhalation of ozone it will prevent the alkaloid or septic material which passes into the blood, from being produced by the bacteria.

SPECIMEN OF ABNORMAL KIDNEY.

Dr. F. C. WELLS: This kidney was removed from a woman twenty-three years old, who had been an invalid all her life. She had suffered with a severe backache for as long as she could remember, and had consulted a great many physicians for the trouble in her back and also stomach. I think there is no doubt that the stomach symptoms were the leading features in the case and that which caused the fatal termination. Each month for the last two years she had had attacks of vomiting, often expectorating bright arterial blood mixed with food. She suffered intense pain after the ingestion of food and often vomited when her stomach was empty, throwing up a greenish bile-like fluid.

When I first saw her, six months ago, I used every means at my command to allay this vomiting, but was unsuccessful. She complained of pain in the right side extending upward from the level of the umbilicus. Upon examination a well-defined tumor was found in the abdominal cavity lying just above the umbilicus, extending across it obliquely to a little below the ensiform cartilage. The tumor was hard and slightly movable and pulsated with the abdominal aorta. The stomach symptoms continued to grow worse and as she was unable to take food, it was only a question of time when the case would terminate fatally. A week before she died, an exploratory incision was made in the abdominal cavity to find out the nature of this growth, if possible; of course, lying in that position it was questionable whether it could be removed or not, and as soon as we got into the abdominal cavity I saw that it would be impossible to remove the growth, and the wound was closed immediately. It healed nicely, there was no temperature, but a week later the patient died from vomiting and general weakness.

At the post-mortem the stomach was found to be badly ulcerated. There were some seven or eight ulcers and a mass of tubercular glands about the pylorus. This kidney was found lying on the vertebral column. The question arises as to the bearing of this kidney upon this case. A clinical examination of the urine had revealed some renal epithelium, some hyaline casts and a few pus

cells. She had a few attacks of cystitis, but how far this kidney affected her general health, if at all, is a question.

Dr. E. R. LE COUNT: I have seen a few cases of malformation of the kidney; the horseshoe kidney is rather common; one of the most infrequent forms is the congenital absence of one kidney. I would like to ask upon what the diagnosis of tubercular glands about the pylorus was made? The ulcers might be accounted for by the position of the kidney, lying in the region of the umbilicus it might press upon the vessels so as to cut off nutrition from the mucous membrane of the stomach, degeneration occur and secondary ulcers be favored by the action of the gastric juice.

Dr. J. M. DODSON: I would call attention to the fact that this is almost exactly like a kidney I presented to the society last summer, which was found in the dissecting room, no history of the case accompanying it. The same evening Dr. Le Count presented a specimen of what he happily designated hypertrophy of one kidney with relative hypotrophy of the other.

Dr. J. M. PATTON: It is quite common to hear it stated that horseshoe kidney is of frequent occurrence, but examination of the statistics of various hospitals and infirmaries throughout Europe, where these records are better kept than here, shows that it is not so. As far as this specimen is concerned, it does not appear that it would have anything to do with the cause of death. If it had not been for the stomach condition, probably the patient would have lived the usual time. The question of pressure favoring ulcers in the stomach of course takes it for granted that the auto-digestion of the stomach walls is an etiological fact, but that is not at all proven. Such an assumption would be far fetched without some demonstrable result of pressure in the general change of nutrition of the wall.

Dr. F. C. WELLS: My diagnosis was ulceration of the stomach. The glands were somewhat enlarged but not enough so to have any special bearing upon the case as there has been no other symptoms of tuberculosis. Her menstruation was regular. The tumor we felt proved to be this kidney, lying above the dorsal vertebra near the eleventh and twelfth, projecting into the abdominal cavity, and lying on the aorta the pulsation was transmitted.

Dr. MURDOCK: The horseshoe kidney is not infrequent but yet I do not know of a case where a history of ulceration of the stomach necessarily goes with it.

Dr. WELLS: I am informed by Dr. Danforth that the London

Hospital gives statistics of autopsies on thirty-four thousand cases with only nineteen horseshoe kidneys.

The Treasurer, Dr. R. N. Hall, then submitted his report, showing \$190.29 balance on hand.

The Auditing Committee, consisting of Drs. G. H. Cleveland and F. B. Earle, approved the report and recommended its adoption, which on motion, was carried.

The President, Dr. Patton, read his annual address.

The Secretary made his annual report and suggested a change in the method of publishing and preserving the reports of the meetings.

The Treasurer suggested that the initiation fee of a new member should also be considered the first year's dues.

Nominations for President being declared in order, Dr. F. C. Wells nominated Dr. J. M. Patton for that office. Dr. F. B. Earle nominated Dr. R. N. Hall. Dr. H. M. Thomas nominated Dr. Stehman. All of these nominations were seconded. Dr. Stehman declined the nomination. The President appointed Drs. Cleveland and Earle to act as tellers. Dr. Hall received fifteen votes, Dr. Patton two, and on motion of Dr. Thomas, the vote was declared unanimously in favor of Dr. Hall. Dr. F. B. Earle was elected Vice President. Dr. G. H. Weaver was elected Secretary. Dr. H. M. Thomas was elected Treasurer. Drs. Cleveland, Patton and Wells were elected Censors. Dr. D. D. Bishop was elected Curator.

Dr. HALL was then inducted into the chair by the retiring President.

Dr. PATTON read the report of the executive committee. On motion, the report was adopted.

Dr. DODSON moved that the recommendations of the President, Secretary, and Treasurer be submitted to a committee to report at the next meeting. Carried. The President appointed as such committee Drs. Wells, Cleveland and Stehman.

Dr. PATTON moved that this committee be instructed to confer with the executive committee. Carried.

The Secretary read a communication from the LaSalle County Medical Society. On motion, it was placed on file.

Dr. PATTON moved that the Treasurer be instructed to pay the usual honorarium of \$25 to the Secretary. Carried.

Dr. EARLE moved that the society extend a vote of thanks to Prof. Monrath for his paper on the "Production of Ozone," read before the society. Carried.

Remarks were made by President-elect Hall, Secretary Weaver, and Treasurer Thomas.

Dr. PATTON reported on behalf of the committee on expert testimony appointed to meet with committees from other societies, the substance of a bill to be drawn up in proper legal form for presentation to the legislature.

On motion, the society adjourned.

JOHN M. DODSON, Secretary.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting held at Schiller Building, Feb. 13, 1894.

Dr. Hotz in chair.

Present, Drs. Hotz, Behrens, Holmes, Gradle, Tilley, Colburn, Westcott, Walker, Warr, Beard, Oakes, Faith, Montgomery, Dodd, Bettman, Mann, Woodruff, and Pinckard. Dr. Steward, of Joliet, was also present by invitation.

Dr. N. H. Pierce was elected a member.

The question of the prevention of blindness from ophthalmia neonatorum as suggested in a recent circular sent out by the committee of the American Medical Association was brought up by Dr. Bettman.

After considerable discussion it was voted to appoint a committee of three to draft resolutions to be embodied into a bill to be placed before the legislature.

The committee appointed is Drs. Hotz, Warr and Bettman.

Dr. TILLEY reported a case as follows: J. B., age 40, consulted me November 1893, complaining he could not see. V. o. u. = $\frac{6}{8}$ easily and he showed no difficulty in reading, yet he protested he could not see without discomfort. He had been treated by an oculist with zinc and copper. On examining the nose it was found almost occluded on both sides. His distress in breathing at night was at times so great that he was obliged to sit by an open window in order to get air. The inferior and middle turbinated bones on both sides showed extensive chronic enlargement. The septum on the left side showed a bony projection high up. The pieces which you see here were taken from the turbinated bones and the septum. On each occasion when pieces were removed, he declared that he saw better, but it was not until the last piece was removed from

the middle turbinate bone, which was high up, that he said his vision was all right.

It is also worth while to mention that he was, or had been, suffering from diabetes. The relief of the nose enabled him to eat farinaceous food, but if he indulged in beer or wine to excess, sugar reappeared in his urine.

Dr. GRADLE reported a peculiar case of neuro-retinitis. A middle-aged woman had not seen well with the right eye for about a year. O. S. all right. No history of constitutional disease. She was troubled with flickering which was very annoying at times. V. O. D. $\frac{2}{60}$; ophthalmoscope showed a low form of neuro-retinitis. On examining the nose, both antrums were found to contain pus. Right antrum was opened and irrigated. In six weeks the vision had improved to $\frac{3}{60}$, and the flickering had almost entirely gone. Retina and nerve became almost normal.

Society adjourned by limitation.

C. P. PINCKARD,

Secretary.

Regular meeting held at Schiller Building, March 13, 1894.

Dr. HOTZ in the chair.

The minutes of the last meeting were read and adopted.

The applications of Drs. A. T. Haight, G. W. Mahoney, W. L. Noble, C. W. Hawley, and Francis Dickinson for membership, were read and referred to the committee on membership.

The report of the committee appointed at the last meeting was read and adopted.

Dr. HOTZ opened the discussion in regard to the value of weak glasses as a therapeutic measure.

Dr. J. E. COLBURN said: The following report is based upon 1,000 consecutive cases examined for statistic refraction. All of the cases being under the presbyopic age. Atropine, homatropine and cocaine were used to suspend accommodation. Each case presented some form of local or reflex irritation for which they were seeking relief.

Number of cases examined, 1,000; number of cases presenting less than 1 D. spher. and 75 D. cyl., 200; number of cases presenting no error, 21; number of cases used in this report, 200; number of cases in which the result of treatment is not known, 21.

The number of each form of error of refraction were, hypermetropia, 15; myopia, 0; myopic astigmatism, 14; hyperopic astig-

matism, 59; compound myopic astigmatism, 4; compound hyper-tropic astigmatism, 108.

Headache formed the chief symptom and was the ruling factor in nearly all cases. The following will give briefly the chief symptoms: Headache, 140 cases; blepharitis, 60 cases; chorea, 4 cases; epilepsy, 2 cases; vertigo, 1 case; mental confusion, 2 cases; drowsiness, 24; neurasthenia, 4 cases.

The majority of the patients were in good or fair general health; they had been previously treated by their family physician; had rest and travel, tonics, sedatives, etc., prescribed for their relief, but found none.

Regarding the mythical .25 D. cyl., it is a fact of common experience, with me, at least, that the patient will be sensitive even to a slight difference, and will reject a glass that is a little too strong or too weak, that is a .25 D. cyl. that measures a little above or below the standard. This I have noticed when a .37 D. has been used as a substitute for a .25 D., or vice versa, and in so convincing a manner that the question of mental impression was wholly removed. This shows that some patients are sensitive even to a 12.

I desire also to call attention to a symptom that is not common but very troublesome, and that is drowsiness whenever an attempt is made to do close work, or to fix distant objects for any length of time. An interesting case: a medical man suffered from annoying and persistent sleepiness all through his school and college life. This troublesome condition earned him the title of "sleepy head." His error was $+ .25$ spher. $+ .25$ cyl., ax 90° , in both eyes. Almost simultaneously with the adjustment of his correction the somnolent tendency disappeared, and he is now able to read or study for hours without its return.

I think that in practice we should give our patients every chance for relief, and that when we can find no other source of irritation, or when relief has been sought and none found, we should, at least, try even the mythical 25 .D.

My experience is that low errors subject patients to greater discomfort than those of higher degree.

Dr. BEARD also thinks that weak lenses were of much value, especially in young people.

Dr. BETTMAN is not convinced that weak lenses are important helps in many cases.

Dr. MONTGOMERY thinks that they are especially valuable where anisometropia exists.

Dr. FISKE also thinks that anisometropia is an important factor in prescribing weak glasses.

Dr. STARKEY said that seventy men had answered his letter, and that sixty favored weak lenses.

Dr. GRADLE'S remarks covered about the same ground as the editorial written by him for the *Journal of the American Medical Association*.

Dr. HOTZ in closing said that his cases were those where no other cause could be found for the asthenopia. Where other causes existed they were treated first.

Society adjourned by limitation.

C. P. PINCKARD, Secretary.

Regular meeting held at Schiller Building, April 10, 1894.

Dr. HOTZ in the chair.

Minutes of last meeting were read and approved.

Drs. C. W. Hawley, T. A. Haight, G. W. Mahoney, Frances Dickenson, and W. T. Noble were elected members.

The applications of Drs. F. H. Weir and Ada Phelps were read and referred to the committee on membership.

Dr. C. A. WOOD read a paper on "The Relations of Idiopathic Epilepsy to Heterophoria."

Dr. E. A. GARDNER had a healthy man, forty-eight years old, a lawyer and a hard worker. Five years before was shot in right hand. Had been having monthly epileptic attacks for years before seen by Dr. G. Amputation of hand was suggested but refused. Bromides had no effect. Was sent to Dr. G. for examination. The patient had no symptoms whatever relating to the eyes. Used spherical over each eye for near. V.o.d.=20.20. Hm. 50. V.o.s. c+.75 cyl.=20.20. Exophoria 3°. The .75 cyl. o.s. was added to reading glass. Had no attacks for two years, when one occurred. Additional spherical added for age and no more attacks.

Another case. Young man after severe mental strain developed epileptic attacks daily. Astigmatism 0.50 in each eye. Esophoria, 2°. Dr. Stevens, with atropine and developing prisms, found 6' esophoria. Did tenotomy of right internal rectus. Returned to Chicago, had three attacks on train. Under atropine o. d. astigmatism 1 D. o.s. .50 D. Went back to Stevens later, and he operated

on left internal rectus. Result nil; was advised to take a trip, but came back insane.

Dr. COLBURN: Boy thirteen; first seen six years ago. Had daily attacks Hm. o. u. 2 D. Hyperphoria 3° . The hyperopia was corrected and fits were less for a time but returned. Operated twice for the hyperphoria, and fits have ceased.

Maggie H. Case. Seizures very severe, 17° esophoria. After several operations perfect balance. Has had no attacks for three years.

Dr. COLEMAN agreed with Dr. Wood that we were not justified in operating unless asthenopia was present. He thinks that heterophoria is an abnormal innervation rather than an organic muscular disturbance.

Dr. FISHER said he had seen Mrs. O'Connell some months after Dr. Wood operated upon her and she still had the full 8° esophoria.

Dr. HOTZ: F. W. N., age thirty-three, draughtsman, seen in July, 1890. Much asthenopia and for four years epilepsy, semi-monthly attacks. Wore + 1 D. continuously for a year but no relief. Under homat. o. u. Hm. + 1.50 no astigmatism, $6-8^{\circ}$ esophoria adduction 20° , abduction 7° . August 1, '90, tenotomy right internus. Violent attack that evening, but no more until November 17, 1890. Another February 9, '91. February 14, '91, esophoria 3° , tenotomy left internal rectus. Violent attack that evening. June 4, September 9, 23, October 23, November 9, '91, slight attacks. Last seen March, '92. Had no attacks since November. Orthophoria at distance, 3° exophoria near, adduction 30° , abduction 5° .

Society adjourned by limitation.

C. P. PINCKARD, Secretary.

Reviews.

AN AMERICAN TEXT-BOOK OF THE DISEASES OF CHILDREN, including special chapters on essential Surgical Subjects ; Diseases of the Eye, Ear, Nose and Throat ; Diseases of the Skin ; and on the Diet, Hygiene, and General Management of Children. By American Teachers. Edited by LOUIS STARR, M. D. Assisted by THOMPSON S. WESCOTT, M. D. Sold by subscription only. Price, \$7.00, Cloth ; \$8.00 Sheep ; \$9.50 Russia. Publishers, W. B. Saunders, 925 Walnut Street, Philadelphia : 1894.

In the preparation of this fine work, it has been the editor's object to present to the profession a working text-book, closely limited to, but completely covering the field of pediatrics. That he successfully accomplished this object, even a superficial examination of this work will convince one, the whole ground of pediatrics is covered in a brief, concise, but still comprehensive manner. While all portions of the book are deserving of praise, the reviewers desire to call special attention to the completeness of Part VII., dealing with diseases of the nervous system, of such vast importance in childhood, and usually treated in the most superficial manner in text-books on children's diseases. Among the contributors we recognize the following well-known authors : John Ashhurst, H. D. Chapin, W. E. Casselberry, Archibald Church, J. M. Da Costa, W. C. Christopher, Fred. Forchheimer, H. M. Lyman, Wm. Osler, William Pepper, J. Lewis Smith, James Tyson, James C. Wilson, the late Charles Warrington Earle, and many others. The work is profusely illustrated, well printed, and a credit to the publishers. No one desirous of keeping fully abreast of the times in pediatrics can afford to be without a copy of this magnificent work.

HEALTHY WOMANHOOD AND CHILDHOOD. Plain Talks to Non-Professional Readers Relative to Healthy and Diseased Conditions Peculiar to Women, and Concerning the Care of Young Children. By HENRY BIXBY HEMINGWAY, A. M., M. D. Evanston: V. T. Hemingway & Co., 1894. Octavo, 290 pages. Cloth, \$2.

There can be no doubt of the desirability of a book such as the one before us, for young mothers and for women generally. For the first time in such a work matters pertaining to matrimony, the

married state, child bearing and sexual hygiene, are treated plainly, competently and seriously. The most unprofessional mind will have no difficulty in grasping fully the intention of the writer, and his professional training has enabled him to give his readers the very best advice medical knowledge affords. As a rule he has abstained from furnishing formulas and directions for treatment, which are only too likely to be abused. His ideas and judgment in regard to many of the most delicate relations of life are marked by intelligence, discretion and wisdom. The make-up of the book is attractive, and any physician who desires to put a work of this sort into the hands of his patients need not look further for a proper one. In no wise is it expected to take the place of text books.

AN INTERNATIONAL SYSTEM OF ELECTRO-THERAPEUTICS : For students, general practitioners, and specialists. By HORATIO R. BIGELOW, M. D., and thirty-eight associate editors. Thoroughly illustrated. In one large royal octavo volume, 1,160 pages. Extra cloth, \$6.00 net. Philadelphia: The F. A. Davis Company, 1894.

This large and complete work brings the subject of electro-therapeutics down to date in every possible branch. As a rule the articles have been written by men who are thoroughly enthusiastic in the use of electricity and in their belief regarding its value, with the result that a general perusal of the volume, or even of special articles, leads to the impression that electricity is the agent of all agents in the treatment of disease. The majority of the writers are American and their work is marked by a practical tone that is distinctive and valuable. The use of electricity for electrolysis and cautery, the Apostoli treatment, osmosis and electrical diffusion, and indeed every possible application of the current finds its proper place and description. Those making any considerable use of electricity will find this volume invaluable, but it is too complicated for the student.

A MANUAL OF PRACTICAL OBSTETRICS. By EDWARD P. DAVIS, A. M., M. D., Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, etc. Second edition, revised and enlarged, with 134 illustrations and sixteen full page plates. 351 pages. Cloth, \$2.50. Philadelphia: P. Blakiston, Son & Co., 1894.

The first edition of this book was excellent, the second is even

more excellent. There are manuals of obstetrics without number, but Davis' manual has its place, by reason of the well-known rule that there is always room at the top. It is practical, clear, concise, just what a student or a practitioner needs. It is small in bulk, but covers the entire ground of practical midwifery. No mention is made of ancient history, or the traditions of the elders, but the facts that the practitioner wants are all there. A chapter on symphysiotomy has been added and also a number of plates illustrating palpation and diagnosis by palpation. The book is unsurpassed as a manual of practical obstetrics.

LECTURES ON AUTO-INTOXICATION IN DISEASE, OR SELF-POISONING OF THE INDIVIDUAL. By CH. BOUCHARD, Professor of Pathology and Therapeutics, etc., Paris. Translated, with a Preface, by THOMAS OLIVER, M. A., M. D., F. R. C. P., Professor of Physiology, University of Durham, etc. 302 pages. Cloth, \$1.75 net. Philadelphia: The F. A. Davis Co. 1894.

Dr. Oliver's translation of Dr. Bouchard's book is literal and yet very readable. The putrefactive processes in the intestinal canal and the pathological developments therefrom have been until very recently, as a rule, unknown or misapprehended. This treatise is a careful, earnest inquiry into the operation of poisons introduced from without or generated within the body, and their action in health and disease. The author's arguments are masterly, and his conclusions logical and convincing. The book is a most valuable contribution to medical literature.

A TEXT-BOOK OF THE THEORY AND PRACTICE OF MEDICINE. By American Authors. Edited by WILLIAM PEPPER. In two volumes, illustrated. Volume II. Philadelphia: W. B. Saunders, 1894. Royal octavo, 1,046 pages.

The second volume of this magnificent work maintains the interest of the first, and the special matter is of the greatest value. Diathetic diseases are treated by Dr. Henry M. Lyman, and his well-known ideas in regard to rheumatism and gout are here well set forth. Dr. Osler takes up diseases of the blood and the ductless glands. Diseases of the heart and appendages, of the mouth, salivary glands, pharynx, esophagus and intestines are treated by Dr. Pepper. Dr. Fitz contributes articles on diseases of the peritoneum, the liver and the pancreas. The two volumes make one of the best medical text-books, valuable alike to the student and the general practitioner.

THE PHYSICIAN'S WIFE; AND THE THINGS THAT PERTAIN TO HER LIFE. By ELLEN M. FIREBAUGH, with portrait of author and forty-four photo-engravings of original sketches, 200 pages. Extra cloth \$1.25 net. Philadelphia: The F. A. Davis Co., 1894.

As a literary production, this little volume is pleasant, humorous; pathetic, natural and eminently readable. It is remarkably true to life. Why it should be classed as a medical book is, however, difficult to determine. The things that pertain to the life of a physician are entirely different from those which pertain to his wife; his professional ways are not her ways, nor his professional thought, her thoughts. The book reflects credit upon its author and publisher, and in its place, which is extra-medical, will be a success.

A MANUAL OF MINOR SURGERY AND BANDAGING FOR THE USE OF HOUSE SURGEONS, DRESSERS AND JUNIOR PRACTITIONERS. By CHRISTOPHER HEATH, F. R. C. S., Surgeon to University College Hospital, etc. Tenth edition, \$2.00. Philadelphia: P. Blakiston, Son & Co., 1894.

This book gives clearly and succinctly all that is known on minor surgery and bandaging. The discussion of antiseptics includes the results of the latest knowledge of this subject. Many new illustrations have been added. The manual is compact, well printed and bound, and well sustains the good reputation of the work.

TRANSACTIONS OF THE CHICAGO GYNCOLOGICAL SOCIETY FOR THE YEAR 1892-93. Volume 1., 268 pages. New York: William Wood & Co., 1893.

The Chicago Gynecological Society, after an honored existence of fifteen years, has at last issued its first volume of transactions, which include the proceedings from July 24, 1891, to September 16, 1892, and also memorial sketches of the deceased members of the society. The book contains a number of valuable articles and discussions. Its appearance is creditable, it is well printed and handsomely bound.

SYLLABUS OF THE OBSTETRICAL LECTURES in the Medical Department of the University of Pennsylvania, by RICHARD C. NORRIS, A. M., M. D., demonstrator of Obstetrics, University of Pennsylvania, etc. Third edition, interleaved for notes, 222 pages. Cloth \$2.00. Philadelphia: W. B. Saunders, 1894.

An admirable syllabus of Prof. Hirst's lectures, well arranged, concise, to the point. Its chief value is of course to the students of the University Medical Department, but practitioners may find in the book many valuable points.

A MANUAL OF GENERAL HISTOLOGY. By WM. S. GOTTHEIL, M. D., Professor of Pathology in the American Veterinary College, New York, etc. Cloth, 148 pages. New York: Sabiston, Murray & Co., 1894.

The author presents in a plain and simple form the principles of histology. The manual will be of value as a preliminary to laboratory work, but its scope does not extend beyond the explanation of the structures of the body.

ESSENTIALS OF NERVOUS DISEASES AND INSANITY. A Manual for Students and Practitioners. By JOHN W. SHAW. Second edition, revised. Philadelphia: W. B. Saunders, 1894. Duodecimo, 194 pages. Cloth; \$1.

This is one of Saunders' well-known question compends and in a way serves to assist the teaching of the subject in question.

THE NURSE'S DICTIONARY OF MEDICAL TERMS, AND NURSE'S TREATMENT. By HONNOR MORTEN. Philadelphia: W. B. Saunders. Cloth, \$1.00.

This small pocket dictionary will be found useful for nurses, and those coming constantly in contact with the sick.

THE PHYSICIAN'S BEDSIDE RECORD. Revised edition with dietary. By GIDEON C. SEGUR M. D. Ten cents each, \$1.00 per dozen. Hartford, Conn: The Slimpton Manufacturing Co., 1894.

Compact, neat, useful and handy.

News Items.

Dr. U. G. LATTI has removed his residence to 3558 Ellis Ave. and reestablished his office at 70 Madison St.

Dr. E. C. SEGUIN, of New York, has been elected a corresponding member of the Académie de Médecine, of Paris.

Dr. ARCHIBALD CHURCH has removed his residence to 4927 Madison Ave. Office as heretofore in the Pullman Building, telephone 2472.

FOR RENT, Office hours from 9 A. M. to 2 P. M., in Venetian Bld'g, with privileges of reception room. Neatly furnished. Apply to Dr. Oaks, suite 305.

FOR RENT, office hours in the afternoon, Suite 705 Venetian Building. Completely furnished with use of reception room. Inquire at same, or of Dr. Marriner, 510 Venetian Building.

THE CHICAGO MEDICAL COLLEGE, through the magnificent generosity of William Deering, has received fifty thousand dollars to found a new professorship of the History of Medicine, to be occupied by the venerable Dean, Dr. N. S. Davis, whose name will be perpetuated in the new chair.

MICROSCOPE FOR SALE: Leitz I a stand; two eyepieces; objectives 3, 7, and one-sixteenth oil immersion; Abbe's condenser and iris diaphragm. Instrument in perfect order. Price \$116.00. Original cost \$165.00. Suitable for bacteriological as well as clinical work. Call between 2 and 3 P. M., at Room 1303, Columbus Memorial Building.

PAMPHLETS RECEIVED.

Non Nocere. By A. Jacobi, M. D., *Med. Record*, May 19, 1894.

The Spectacle Treatment of Hypermetropia. By Boerne Bettman, M. D.

Special Report of the Superintendent of the Illinois Asylum for Feeble Minded Children.

Surgical Clinic Given at Westley Hospital, March 31, 1894. By F. C. Schaefer. *Clin. Rev.*

Appendicitis Obliterans. By N. Senn, M. D., Ph. D., LL. D. *Journ. Am. Med. Assn.*, March 21, 1894.

Sleep, Sleeplessness and Hypnotics. By S. V. Clevenger, M. D. *Journ. Am. Med. Ass'n.*, March 10, 1894.

The Nonsurgical Treatment of Ovarian Diseases. By J. H. Kellogg, M. D. *Mod. Med. & Bac. World*, 1893.

The Therapeutic Use of the Salts of Gesium and Rubidium. By Theodore W. Schaefer, M. D. *Med. News*, March 10, 1894.

Three Cases of Carcinoma Developed on Lupus Vulgaris. By Emanuel Friend, M. D. *Journ. Am. Med. Ass'n.*, April 7, 1894.

Laparo-Hysterotomy, its Indications and Technique. By N. Senn, M. D., Ph. D., LL. D. *Am. Journ. Med. Sciences*, September 1893.

Tenorrhapy by means of the Suture a Distance of Catgut, with report of case. By Emanuel J. Senn, M. D. *Journ. Am. Med. Ass'n.*, April 28, 1894.

Remarks upon Appendicitis, based upon a Personal Experience of 181 Cases. By Morris H. Richardson, M. D. *Journ. Am. Med. Sciences*, September.

Operations for the Relief of Valve Formation and stricture of the Ereter in Hydronephrosis. By Christian Fenger, M. D., *Journ. Am. Med. Ass'n.*, March 20, 1894.

Leprosy. *Tex. Med. Journ.*, May, 1894. Report on the Leprosy Question in Louisiana. Pro. Orleans Parish Med. Soc. for June. By Isadore Dyer, Ph. B., M. D.

Teno-Suture and Tendon Elongation and Shortening by Open Incision: Advantages and disadvantages of the Various Methods. By H. Augustus Wilson, M. D. *Internat. Clin.*, Vol. I. Fourth Series.

The treatment of Grave's Disease by Thyroidectomy. *Journ. Nerv. & Ment. Dis.*, Dec. 1893. Notes on Two Additional Cases of Thyroidectomy for Graves' Disease. *Journ. Nerv. & Ment. Dis.* June, 1894. By James J. Putnam, M. D.

The Spectacle Treatment of Hypermetropia. *North Am. Pract.* Ripening of Immature Cataracts by Direct Trituration. *Jour. Am. Med. Ass'n*, November 4, 1893. Subvolution, A New Pterygium Operation, *Jour. Am. Med. Ass'n.* March 24, 1894. By Boerne Bettman, M. D.

THE CHICAGO MEDICAL RECORDER

AUGUST, 1894.

Original Articles.

CEREBRAL PALSY OF CHILDREN.

By ARCHIBALD CHURCH, M. D.

PROFESSOR OF MENTAL DISEASES, CHICAGO MEDICAL COLLEGE; PROFESSOR OF NEUROLOGY, CHICAGO POLYCLINIC; NEUROLOGIST TO ST. LUKE'S AND COOK COUNTY HOSPITALS.

It is only recently that text-books have in any systematic manner even mentioned the paralysis occurring in early life due to intracranial lesions, yet the great frequency of this serious misfortune and the fact that of paralyzed children about one-half as many suffer from cerebral disease as those who are crippled by spinal lesions, renders the importance of the subject at once self-evident. Of late years, especially since 1890, this condition has met with the attention of many observers and a mass of literature has resulted which is of the greatest importance. It is only necessary to mention the works of Drs. Sarah McNutt, Osler, Sachs, Peterson, Gibney, Sinkler and Smith, in this country; Cotard, Cruveilhier, Brechet and Marie in France; Kundrat, Struempel, Benedict, Bernhardt in Germany; Gowers, Ross, Abercrombie and others in England.

In every neurological clinic patients are being presented almost daily where the malady has escaped medical elucidation at the hands of family practitioners, who have been satisfied to class the cases as spinal paralysis, idiocy, or congenital defect, without seeking a more accurate designation, and attributing the condition to teething, infectious disease or some injury. Yet the characteristics of the affection are so marked that having been once pointed out their recognition is not a matter of much difficulty.

These children present three types of disability, dependent

upon the location and extent of the brain injury. They are hemiplegic, diaplegic and paraplegic, as one side, both sides or only the lower extremities are particularly affected.

In the hemiplegic type, which is perhaps the most common, the conditions of the paralyzed side are analagous to those which appear in the hemiplegic adult, with the modifications that might be expected from disease occurring in the brain of the developing child. Rigidity, retarded development, contractures, spasticity and increased reflexes are the prominent symptoms. As with



HEMIPLEGIC SINCE BIRTH.

Showing athetosis in right hand; overaction in right face and shoulder.

adults, the paralyzed members are sometimes the seat of associated movements; if the sound limbs be automatically or violently thrown into activity, especially in gestures of an emotional character, the paralyzed limbs are inclined to duplicate the movements, and in addition they are frequently the seat of spontaneous choreic or athetoid action, which in some instances persists during sleep, and which is as a rule intensified by volitional activity and emotional disturbance. In these cases of athetoid extremities, owing to the muscular activity, a part of the condition of athetosis, the muscles are frequently well developed in size and consistency. Indeed such limbs may be larger and firmer than those on the sound side, but the lack of synergism in their functions

is attended by great weakness, so that these individuals will register upon the dynamometer but a small fraction of the pressure that would be normal, and the joints, as a rule, are capable of wider range and latitude of motion owing to the relaxed ligaments and plastic condition of the joint surfaces in childhood, which conduces to their deformation under the perverted muscular control.

In the diplegic and paraplegic cases the rigidity in the lower extremities is usually complicated by more or less adductor spasm, interfering greatly with walking and producing the characteristic cross-legged progression or position. The retraction of the posterior muscles of the legs overbalancing the anterior and peroneal



CONGENITAL DIPLEGIA.

Showing athetosis in all four extremities; adductor spasm; equino varus, mental defect.

groups gives rise to the equine position of the foot, usually associated with a tendency to varus, in many cases of high degree.

Where the limbs are not the seat of athetoid movements a position analagous to that of hemiplegia in adults but with a lack of development in the muscles and bones is the rule, so that when these affected individuals reach mature years there is a great discrepancy in the size and length of the limbs upon two sides of the body, and sometimes asymetry of the face.

If, previous to the onset of the paralysis, the child has learned

to talk, speech will be either abolished or greatly interfered with for a time, irrespective of the side of the brain involved, but subsequently in nearly every instance, if the intelligence is not too much impaired, articulate language will be more or less completely restored. The mental development of the child is also arrested, and depending upon the extent and character of the lesion, idiocy, imbecility, feeble-mindedness, or only a slight defect, may follow.

The organic process lays these individuals liable to the onset of epilepsy. About one-half of them that outlive the shock of the original brain disease sooner or later develop epileptoid attacks,



PARAPLEGIA FROM BIRTH.

Showing spastic lower extremities, adduction and cross-leg walk.

which, as might be expected, are in many instances of a marked Jacksonian character with a tendency to become more and more generalized, and in some instances are of a general epileptic character from the first. Under this protracted epileptic state dementia is likely to ensue. The outlook for the mental strength of the child so attacked is a gloomy one at best.

As in the adult, the tendency is for the lower to recover more rapidly than the upper extremity, and the face, if affected on one side only, will in conditions of repose regain something of the appearance of symmetry, but the overactivity which marks the

hemiplegic side and is associated with the spasticity will manifest itself during emotional expression, such as laughing or crying, even where all the other symptoms have practically disappeared.

These cases fall into three groups, as has been clearly pointed out by various writers: First, those dependent upon conditions present before birth; second, to the accidents of parturition; third, to brain lesions acquired subsequent to birth. Sachs and Peterson make the following classification: First, palsies of intrauterine onset, marked by large cerebral defects, hemorrhages and cerebral agenesis; second, paralysis occurring during labor, due to meningeal hemorrhage; third, paralysis acquired after birth from hemorrhage, embolism, thrombosis, chronic meningitis, hydrocephalus and perhaps the primary encephalitis of Struempel.

The developmental defects of the first class frequently result in cyst-like cavities constituting true porencephaly, in some extreme cases a large portion of the hemisphere being wanting. Fetal cerebral hemorrhages may follow injury to mother and child, or marantic conditions affecting the fetus. Meningeal hemorrhages occurring during labor are very much more frequent than has usually been supposed. The instructive report of Herbert Spencer regarding the conditions found in stillborn children shows that out of 130 such instances there were 53 cases of hemorrhage into the cerebral pia and arachnoid, one case of intracerebral hemorrhage and 30 cases of hemorrhage into the meninges and substance of the cord. It is evident that if the tendency to meningeal hemorrhage be so great as here indicated in the stillborn, many children in whom the hemorrhage is of less severity may escape immediate death to present subsequently the palsy under consideration. Peterson very clearly points out in a recent article that the spinal meninges being so frequently involved, some of the paraplegic cases may be due, not to cerebral conditions, but result from the interference with the conducting elements of the cord itself, especially some of those cases that are marked by a high grade of mental intelligence, and present no symptoms above the waist.

The relation between protracted labor and cerebral palsy is an intimate one, a majority of such cases being of primiparous birth and often assisted into the world by forceps. Without trying to overlook the danger forceps may do the brain, the injuries, especially in the way of meningeal hemorrhage, from the compression of protracted labor, are of much more significance and indicate early instrumental interference rather than the opposite course if

the element of severe compression is present and a skillful use of forceps is assured. On the other hand in the writer's experience some of the cases have been due to precipitate birth where the pressure upon the head has been suddenly and forcibly applied by a vigorous uterus.

The post-natal acquired palsies of a cerebral character are due in a large proportion of cases to cortical or subdural hemorrhage, embolism causing but a few, and thrombosis being responsible for even a less number. Chronic meningitis and hydrocephalus in these cases are usually mixed processes, the nature and origin of which are difficult to elucidate on the post-mortem table where terminal conditions have served to confuse the situation. Struempel believes that many of these cases are due to a primary encephalitis, a process analagous to the spinal disease, involving the anterior horns of gray matter in anterior poliomyelitis, and he designates it polioencephalitis. In substantiation of his views he points to the occasional febrile onset, the acute manifestations of the disease and the subsequent diffuse sclerosis of the cortex. Here, however, as elsewhere, post-mortem opportunities have been rare, as these cases only come after some years to the investigation of the anatomist, and the theory of Struempel is not supported by early anatomical evidence. Osler, however, leans to the idea that there is some foundation for the hypothesis.

The terminal conditions from hemorrhage, embolism and thrombosis are somewhat similar, and result in about one-half the cases, according to Sachs and Peterson, in cysts, atrophy and sclerosis, with evidence of hemorrhage in about one-quarter of this number. The cystic condition is sometimes confused with true porencephalus which is a developmental defect. Embolism and thrombosis are so rare that except in the presence of constitutional conditions strongly predisposing to such processes, they may usually be left out of the argument. In the paralysis following acute rheumatism, endocarditis, scarlet fever, diphtheria, or in the subjects of hereditary syphilis, they should be taken into prominent consideration.

The diagnosis of this condition can usually be made out with readiness. The congenital cases are likely to present the greatest difficulty as very little is expected of an infant up to the age of nine months or a year. A hemiplegic state, however, would be soon made out. In the conditions acquired after birth a previously active child is suddenly taken with convulsions and these convulsions being followed by more or less paralysis such investigation would

follow as to leave little doubt regarding the trouble in hand. Later on, when such cases are brought for examination the rigidity in the extremities, the increased reflexes, the spasticity, frequently the morbid movements, the retarded development and the preserved electrical responses should distinguish the paralysis from that of a spinal or peripheral character in which true atrophy would be found, with lost reflexes and the reaction of degeneration or the refusal of the muscles to respond to all forms of electrical stimulation.

In some instances the cranium does not develop as might be expected, and microcephalus results. The question may arise whether or not the mental retardation may be due to the microcephaly or the microcephaly only a part of the maldevelopment. Here the history of early closure of the fontanelles, or the fact that the fontanelles were obliterated at birth, may be a guiding factor. Many cases of early synostosis of the cranial bones present spastic symptoms, increased reflexes and mental retardation, without showing post-mortem any evidence of cerebral disease, except in very late cases some cortical atrophy or slight sclerosis.

The prognosis is usually good as to life, but the life of such individuals is a short one, very few such cases reaching the age of thirty.

As regards motor power, it may usually be promised in hemiplegics that the face will practically recover and the lower extremities serve the purpose of locomotion, but for the upper extremities the prognosis must be guarded. Speech will usually be regained, and after a few months the prospects as to mental development may be estimated with some certainty.

It has been stated that about one-third of these cases become subsequently epileptic, and the development of epilepsy with a tendency to epileptic dementia must be carefully borne in mind. It may usually be stated with positiveness that the individual will be defective, that the muscular power in the involved limbs will be lessened and that mentally, in all probability, there will be some defect. In the rare cases where the condition is one of true paraplegia the development of a higher grade of mentality is possible.

The treatment of these unfortunate cases is varied and it may not be amiss in the first place to urge the skillful use of forceps in protracted labor attended by great compression to prevent meningeal hemorrhages, so frequently the result of that process. In paralysis acquired after birth the treatment at first is very similar to that instituted with adults: quiet, purgation, cold to the head if

hemorrhage is diagnosed, and the withdrawal of all excitement. The later treatment consists in general measures, such as massage, and electricity to the extremities, by which much can be done to prevent distortions and to maintain the nourishment of the muscles, thereby assisting in the vicarious control of the members by the uninjured side of the brain in hemiplegics, and to maintain for the patient the greatest possible muscular strength under all circumstances. The mental state can be greatly modified for the better by careful instruction and in some institutions for the feeble-minded it is simply wonderful what is accomplished by conscientious, scientific and assiduous effort in this direction.

The presence of epilepsy, constituting as it does a grave element both as to the present health of the individual and his future prospects, will call for solicitous attention. These patients as a rule do not stand the bromides well and they are particularly prone under prolonged bromide exhibition to develop the depressed features that go with the continuous use of that drug. By carefully grading it to their tolerance and seeking with it merely to hold the epileptic tendency in abeyance, sometimes much good can be accomplished, but the question will often arise here, as in general epilepsy, whether it is better to stupify the patient constantly with bromide, perhaps thereby eliminating fits, or to let him have a fair degree of mental and physical activity without bromides, and an occasional epileptic seizure.

The surgical treatment consists in attention to the contractured extremities, and is principally orthopedic. By braces and apparatus, associated with tenotomies and sometimes with a correction of joint surfaces, very frequently helpless patients may be put upon their feet; but athetoid limbs are rebellious to all forms of mechanical appliances. Many of the cases bring forward the problems of brain surgery, many of them present Jacksonian fits, but unfortunately, the early favorable prospects of operation for Jacksonian epilepsy have not been fulfilled by wider experience, and it is probable that if a small portion of the widely sclerosed cortex be removed, thereby destroying the initial symptoms of seizure in a given case, the scar tissue laid down and the epileptic tendency elsewhere present in the brain will lead to a recurrence of the fits, only slightly modified in character. Cysts, to be sure, may be evacuated, but it is doubtful that very much good will be accomplished. Porencephalic cases are not to be benefited by increasing the porencephaly. There are probably some of these cases that can be greatly benefited by cerebral surgery. Some

cases of athetoid spasm may be cured as far as the spasm is concerned by the ablation of the associated cortex. In New York, in one case where the spasm was so severe as to cause endless discomfort to the patient, an amputation was done, with great relief, and the operator expresses himself as justified. A similar case appeared in my practice, where an arm was so seriously convulsed that the entire time of the patient was occupied in holding with the disengaged hand the unruly member, which as soon as released would fly behind her back, or into her face or behind the neck, and resist very vigorous efforts to dislodge it. The cortex was exposed, the arm centers verified by the electric current and this portion of the cortex removed. Relaxation and paralysis in the athetoid member resulted, thereby liberating and making available for use the sound hand of the patient, and subsequently, slight voluntary control returned in the formerly athetoid but now partly paralyzed extremity.

In cases of microcephaly where there is a distinct history of closed fontanelles at birth and where the general strength and health are good, the operation of linear craniotomy still promises something for improvement, but the linear exsection should be sufficiently extensive to give the cranium an opportunity to expand, which is not accomplished by the incisions laid down by early operators. It is also a fact that these defective individuals do not bear surgical interference with the brain at all well, and the mortality from such operations is consequently high.

The management of these cases means years of patience on the part of friends and physicians, but in many instances much effort will be rewarded by a fair degree of improvement.

PULLMAN BUILDING.

THE TREATMENT OF MALIGNANT TUMORS WITH THE TOXINES OF ERYSIPELAS.

By DR. CARL BECK.

PROFESSOR OF SURGERY, POST GRADUATE MEDICAL SCHOOL. ATTENDING SURGEON TO COOK
COUNTY HOSPITAL.

Bacteriology is a new branch of our science, but its importance is increasing. While the modern physician can hardly help accepting theories of the etiology of diseases, in conformity with bacteriological facts, it seems that these must soon reach so far that our therapeutic measures will bear the sigillum of this branch of science. At least a remarkable tendency is being shown by pioneers in therapeutics all over the world to extract from the researches and facts of bacteriology whatever might be of benefit to our therapy. New and barbaric names, such as tuberculin, tuberculoïdin, antidiphtherin, and antitetanin, are introduced into modern literature, and toxines of all kinds are tried everywhere. Every progressive mind must, even though it be with reluctance, take up this subject; and this is favorable rather than otherwise inasmuch as the enthusiasm of the first inventor or observer is counterbalanced by the cool skepticism of the after-experimenter, and thus the truth is made evident. There is usually something good in inventions and discoveries, but the first observer is apt to be carried away by enthusiasm and to see more than is objectively to be seen.

I consider it my duty to take up the matter so important as the treatment of malignant growths by injections with the toxines, as I, like other surgeons, meet with inoperable cases where the slightest chance that is offered to save the patient's life is grasped at. I think that every one who has the opportunity should make experiments in this direction, for it is only by extensive experiments of different operators that we will be able to determine the value of these injections.

The method of treating malignant tumors by injections with the toxines is comparatively new, but it is established on an old and well-known fact. About 160 years ago Hoffman, and in 1792 P. Frank, reported cases of different ailments, especially diseases of the skin, that were benefited by the accidental occurrence of erysipelas. In this century many observers have published reports of cases in which there was improvement of syphilitic ulcerations, lupus, sarcomata and carcinomata, after erysipelas. Ricord, Sabatier, Schedel, Cazenave and Mauriac were familiar with "erysipelas

salutaire'' as they called it. Bush and Volkmann, of the German authors, have also reported similar instances, the history of which is given in detail in Tillmann's extensive work on Erysipelas, in *Deutsche Chirurgie*. The German surgeon, W. Busch, 1866, was the first to attempt to produce erysipelas for curative purposes, but even with the crude methods of his time he succeeded, and reported a wonderful result. Later on many more experiments were made, but only recently, owing to the great improvement in our methods, have exact results been obtained. It is not necessary for us, as it was for Busch, to place the patient in a bed supposed to be contaminated and wait for the effect, but we have at hand the culture of the coccus, and can apply an exact dosage.

The use of the toxines of erysipelas and cultures of the same for the cure of malignant tumors has been lately recommended by Bull and Coley, of New York, who have given an extensive and accurate report of their cases. Roger, Spronck, Lassar, Friedlander and many other surgeons have experimented with this method.

I have observed the effect of the injections on ten patients, with different malignant diseases, and will now report them as accurately as possible, giving systematically the history of each patient, the method of injection, the material used and the results so far observed.

The first case was the most remarkable, and the most closely observed.

CASE 1. Miss S., seventeen years old, was referred to me by Dr. S., of this city. She had suffered for about six months from edema and ulceration of her right leg, but refused an examination until October, 1893, when, after every possible remedy had been tried without avail, the doctor made an examination and found a large abdominal tumor. When I was called I corroborated the diagnosis. The tumor was about fourteen inches in diameter in every direction, filling the entire pelvis. It was immovable. Large superficial veins, and edema of the labia and legs indicated that the deep circulation was impeded. Examination by the vagina and rectum suggested that the tumor was not from the uterus, this being infantile, nor from the ovaries, but most probably from the fascia. The tumor was slightly fluctuating. Our diagnosis was "cysto-sarcoma" and the case was pronounced very critical. Consultation with Drs. Fenger, Banga and Van Hook confirmed the diagnosis. An exploratory incision was proposed, with a view of ascertaining the operability of the tumor, and the question of treatment by injections of erysipelas was also brought up, and I

decided to try it after suturing the tumor to the abdominal wall, thus making it possible to bring the erysipelas in direct contact with the growth, as I had my doubts, after reading the reports of Spronck and others, of the efficiency of injections made at distant points.

I made the laparotomy at the Post Graduate Medical School on November 28. The tumor was retroperitoneal around the large abdominal vessels and totally immovable. An incision into the tumor caused profuse hemorrhage which could only be checked by packing. The tumor was stitched to the abdominal wall, and the patient left the hospital two weeks afterward, with the abdominal wound healed except a small discharging fistula. The size of the tumor was not diminished. The surroundings of the patient after leaving the hospital were very bad, she laid on a cot, in a dirty room which was occupied by a large family, and the nursing given her was very poor, as these people could not afford to hire a nurse. To this fact is probably due the final fatal result.

We began at once to treat the patient with erysipelas cultures of proved virulence, secured from the laboratory of Dr. Gehrmann. The first inoculation was made after the method of Fehleisen, by scarifications, and we obtained a perfect result. Three hours after inoculation the temperature rose to 103° , there was a high pulse and local redness. Sweating followed the same evening and the temperature continued at 101° for some time. The next morning a large amount of a yellowish mass of apparently fatty degenerated tumor, came from the fistula, and for about a week this matter was continuously discharged, the tumor being slightly diminished in size. A second and third inoculation within three weeks gave the same results. In the meantime the edema of the labia and legs, which at times was so great that puncture almost seemed necessary, was greatly reduced, and the patient was able to sit up. Subsequent inoculation with cultures of apparently attenuated virulence failed to produce characteristic erysipelas and I tried bouillon cultures which had been heated and then filtered, that is, the toxines prepared in a manner which according to the latest observations seems objectionable. But strange to say these toxines produced the characteristic symptoms. For the sake of experiment I tried, during the same period, injections with alcohol, tannin, salicylic acid and other solutions, which produced no general symptoms except intense local tenderness. Previous to March the patient received a large number of inoculations with different methods, but from that time on we used only Dr. Gehrmann's pure

toxines, with a most striking result. After two injections into the arm Dr. S. telephoned me that the remainder of the tumor, which had been large, had almost entirely disappeared. But lack of proper attention and good nursing interfered with the recovery of the patient, she became more and more emaciated, her stomach would not retain either food or drink, and on May 15 she died, nearly two months after the entire disappearance of the tumor. A post-mortem was not allowed.

To summarize, I conclude that the sarcoma in this case disappeared entirely under inoculations with the erysipelas cultures and toxines, both methods being employed, but the direct seemed to be of greater value.

CASE 2. William H., aged fifty-eight. The following history was given at the Cook County Hospital: W. H. sought relief from a rapidly growing swelling in the neck. He was admitted November 8, at which time the tumor was the size of a hen's egg. It was first noticed by the patient three months previously. He gave no history of venereal infection, and had no other symptom indicative of specific taint. The swelling was hard and superficially suppurating. The patient breathed with difficulty, presumably on account of the pressure of the tumor upon the trachea.

Operation. Under chloroform anesthesia the patient became deeply cyanotic and the anesthesia was abandoned. He was given two ounces of whisky and one-fourth grain of morphine, and the tumor was dissected out.

When I first saw the patient, three months after this operation I found him to be suffering from carcinoma of the larynx. The tumor that had been excised was the metastatic glands. At first I considered the question of total extirpation of the larynx, but as the case was very unfavorable for this procedure I performed tracheotomy and placed him under treatment with erysipelas toxines. He was given an injection into the arm of from twenty-one to twenty-eight minims of the toxine, Gehrmann, for twenty-three consecutive days, but there was no reaction in temperature or pulse nor any change in the tumor, which continued to grow. The man is still living and suffers from continuous hemorrhages from the larynx.

CASE 3. G. F. Rawlins, fifty-six years old, Cook County Hospital. He was suffering from constant hemorrhage from the teeth and excessive neuralgic pain on the right side of the face. He was under treatment by two quack physicians who for three

successive months cauterized his nose, and when his cash giving out, he then landed in Cook County Hospital. He was found to be suffering from carcinoma of the palate, involving the upper jaw, and thought to be inoperable. He was given erysipelas toxine injections from March 27 to April 20, thirteen injections with the toxines and several injections with distilled water. Neither produced any remarkable reaction in pulse or temperature; the latter never reached 100°. As this man did not improve any by treatment with the toxines I resolved to make an extensive operation, and resected the cheek, right upper jaw, a large part of the palatal bone, and a part of the pharynx. Making the case the subject of consecutive plastic operations.

CASE 4. Mr. R. was operated upon for carcinoma of the upper lip and cheek, by Dr. Dodds and myself, a meloplastic operation following. From the appearance of the wounds it was suspected they might still contain some carcinomatous infiltration, but they improved surprisingly after the patient had gone through two attacks of accidental but extensive erysipelatous infection. Lately I have seen the patient, and while the old scars are still healthy, there is a recurrence of the tumor in a new location.

CASE 5. H. H., age 29, has been a sufferer from primary sarcoma of the eyeball, which has been repeatedly operated upon but in every instance there was recurrence until finally it has resulted in a general sarcomatosis. On March 14, at Cook County Hospital, we commenced to treat him with erysipelas toxines. At 8 A. M. he received ten minims and at 8 P. M. his temperature was 102° and the pulse 122, then the temperature fell to 100°. The next day another injection of ten minims was given him, when the temperature rose slightly but was normal by night. The injections were kept up and the same reaction occurred, but later irregularly, until a week after commencing the injections we could not obtain any positive reaction. He received sixteen injections between March 14 and April 14, when he was so low that further experimentation seemed unreasonable. During all this time the disease progressed as if no treatment had been attempted.

CASE 6. M. H. P., 57 years old. Cook County Hospital March 1. Sarcoma of the lower jaw. Was treated for a long time in the same manner as the other patients, but without result.

CASES 7, 8, and 9, are all sarcomata in different regions of the body, the patients being of different ages. They were all treated in the same way as the previous cases, for a month or more, but without the slightest improvement.

From an observation of these cases I am inclined to draw the following conclusions:

1. Accidental erysipelas, like many other infectious disease, has an influence on pathological processes preëxisting in the body.

2. This influence is not constant and does not limit itself to a certain group of pathological conditions. The cultures of erysipelas seem to influence pathological processes more than the toxins, and accidental erysipelas even more than the culture.

3. It is at present impossible to say any thing definite about the therapy of the cultures and toxins. The same effects are often obtained by the use of arsenic, potassium iodide, injections of alcohol, zinc chloride, and many other substances. Even artificial abortion has been used with good result to remove sarcomata by H. Fritch, whose report is given in *Centralblatt für Gynecology*, No. 23, 1894. Fritch based his experiment upon an observation by Professor Luecke, of Strassburg, who saw in a pregnant woman a sarcoma the size of a walnut disappear during the puerperium, reappear in the next pregnancy, disappear in the second puerperium and again reappear in the third pregnancy, when it was operated upon, but without result.

4. In many cases where a sarcoma has been pronounced cured it seems probable that a mistake in the diagnosis was made, inasmuch as it is very difficult for even the well-educated eye of the microscopist to make a definite differential diagnosis between syphilitic granulations and sarcoma in certain stages.

5. I am inclined to believe that the process which takes place in sarcomata is fatty degeneration, sometimes reaching necrosis.

6. There is danger in the use of the toxins as long as certain and objective indications are not pronounced, because tumors which are operable and give a good prognosis, might be experimented upon and operation delayed until too late.

TREATMENT OF THE SUMMER COMPLAINT.

By WILLIAM F. WAUGH, A. M., M. D.

PROFESSOR OF CLINICAL MEDICINE, POST-GRADUATE COLLEGE; CONSULTING PHYSICIAN TO THE
MASONIC HOSPITAL OF CHICAGO.

I have ventured to bring the subject of summer complaint before you, because of its prevalence at this season, the enormous mortality it causes, and because I believe that many of these lives might be saved by the treatment I had the honor to introduce, and by the application of the principles of good hygiene. The latter should rather be first mentioned, as bad domestic hygiene is largely responsible for the disease and for its fatality. In studying the causation of malignancy, I have been struck with its invariable connection with bad hygiene.

During my last service as sanitary inspector more than one thousand cases of infectious disease came under my notice. Of these, there was none that presented malignancy, or even marked severity, that was not associated with palpable defects in the hygienic condition of the premises; such as foul, leaky or overflowing cesspools, or masses of decomposing filth in the rooms, cellars, yards, alleys or gutters. The same thing is true as to summer complaint; and much of the benefit derived from taking children to the parks, or on the water, is really due to getting them away from their unhealthy homes.

As heat is one of the direct etiological factors of summer complaint, a leading indication is to keep the sufferer cool. The room should be darkened during the heat of the day, and is best cooled by placing large blocks of ice in it. A tub of water should be kept standing in the room, and the child allowed to bathe at will; the clothing being such as may be readily laid aside for this purpose.

The diet must be regulated scrupulously. It did not require Vaughan's great discovery to teach clinicians the dangers of milk. From its source until it reaches the consumer, milk is of all foods the most prone to acquire toxic properties; from the cow, or her surroundings, from adulteration, from accidental contamination, from dirty or unskillful handling, or from spontaneous decomposition. Except under ideal conditions of supply, I exclude milk from the diet of children with summer complaint. When given it is best in the form of junket, or peptonized, as the secretion of the digestive ferments is more or less suspended during the attack.

The best food for very sick children is the raw white of egg, dissolved in ice water. No other food can be retained if this is rejected ; and no other will be so quickly absorbed and assimilated as this alone of all foods is directly absorbed by the growing chick without passing through a digestive system. Other foods suitable are bovine, Carnrick's and other predigested foods, raw beef, ice cold, or warmed through, rice, dry toast, or zwieback, coffee, and distilled water. Food should be given in small quantities, with full doses of the digestant principles, at intervals of not less than two hours. If the stomach be too irritable it should have several hours rest ; food being given by the rectum, and the body rubbed with warm oil several times a day. Water should be given freely ; but if the child be sweating profusely, and drinking incessantly, the perspiration should be checked by agaricin or camphoric acid, and drinks only allowed at stated intervals.

In the simplest form of the disease, summer diarrhea, we have loose, fetid stools, flatulence, abdominal pain and tenderness, anorexia, and the child becomes thinner. The indications are to clear the bowels of offensive matter and reëstablish healthy secretions. For this there is nothing better than the neutralizing cordial of

R	Vin. ipecacuanhae	℥j.
	Potass carbonat.....	℥ss.
	Tinct. hydrastis.....	℥iv.
	Syr. rhei aromat. q. s. ad.....	℥iv.
	M. S. ℥ss to ℥ij every four hours.	

If the stools are white and pasty, I prefer to give calomel, gr. $\frac{1}{10}$, with a grain or two of prepared oyster shell, every four hours. This simple treatment, with attention to the diet and hygiene, is usually sufficient, and is preferable to the use of astringents.

In graver cases, we may have the symptoms of an acute catarrhal gastritis, with incessant vomiting, gastric pain, great thirst, and little or no diarrhea. The indication is to subdue the irritability of the stomach, and check any fermentation or microbic action in this viscus. For this I give the sulphocarbolate of zinc, gr. ss to ij, every one-half to two hours, with several grains of bismuth subnitrate.

If the force of the disease be exerted on the intestines, we have symptoms of entero-colitis; frequent, watery stools, with abdominal pain and tenderness, rapid emaciation, and fever. The same treatment is indicated, with hot fomentations to the abdomen,

and all starchy food forbidden. Should the fever not subside speedily, a few grains of phenacetine or granules of aconitine may be given. If the rectum be mainly affected, and the symptoms assume the dysenteric type, the sulphocarbolate is still to be given, with very small doses of Dover's powder to check peristalsis, and small enemas of hot water, one-eighth grain silver nitrate or five grains of the sulphocarbolate to the ounce.

In the cases properly called cholera infantum we have the choleraic group of symptoms; rice water evacuations from the stomach and bowels incessantly recurring, rapid emaciation, feeble or imperceptible pulse, cold extremities, muscular cramps. For this condition no remedy equals the sulphocarbolate, in doses of one-half to two grains, every half hour. The normal salt solution, injected hypodermically, relieves the cramps and restores the circulation. Pellets of ice, and small doses of brandy, should be given frequently.

Cases of heat exhaustion, and of true sunstroke, occur frequently in connection with summer diarrhea; demanding stimulants and heart tonics on the one hand, antipyretics and cold on the other.

There remains a condition of the greatest interest, that formerly denominated hydrocephaloid. In this we have a characteristic group of symptoms. The pulse is small and tense; the pupils contracted, the stomach intolerant, but the diarrhea may be suppressed. The temperature is 103° to 104° F. The epigastrium and forehead are burning hot, the extremities cold. If old enough, the child complains of headache, or is delirious or comatose. The condition is one of debility approaching collapse, and is apt to be fatal unless antiseptic treatment is instituted. It is especially likely to appear when opium has been given injudiciously, but may occur when no opiate has been administered. My attention was first attracted to this condition by the similarity of the group of symptoms to those presented in diphtheria when the nasal tract has been invaded. In this case, the same symptoms present themselves, except the epigastric burning. I had learned to recognize in the diphtheritic disease a sapremia, due to the absorption of toxins generated in the nasal passages, and relieved by clearing them out with antiseptic lotions. This led me to the use of antiseptics in the so-called hydrocephaloid, with the happiest results. Under the use of antiseptics, the temperature falls, and all the symptoms subside with a rapidity I have never witnessed under the use of any remedy except the sulphocarbolate. From its success

here I was encouraged to employ this agent in all forms of the summer complaint, believing that all are due to the operations of microorganisms in the alimentary canal. During the past seven years, since I adopted the use of this salt, and recognized the necessity of obtaining it in a state of chemical purity, I have had no deaths in private or consultation practice from any form of summer complaint.

Since 1884 I have been urging upon the profession the importance of intestinal antiseptic; and from many correspondents and former students I have the cheering reports of results as good as my own.

In the June number of the *Alkaloidal Clinic*, Prof. Shaller, of Cincinnati, states that the zinc sulphocarbolate has won his utmost confidence after a very extended experience in septic conditions of the alimentary canal. He gives a granule of one-sixth grain every half hour to a child one month old. In many other affections the principle of intestinal antiseptic is being applied. The following is a summary of a leading article on this subject in the *British Medical Journal*, in which the matter is covered admirably.

“Gautier proposed the name of leucomaines for the alkaloids elaborated in the living body by simple putrefaction of the intestinal contents. Of these, indol, skatol and phenol are toxic and antiseptic. Their amount in the urine exactly represents the amount of intestinal putrefaction. Besides these, some pathological microorganisms can only produce their toxins in the presence of those of putrefaction. Bocklisch has shown that this is the case with the bacteria of cholera morbus. In any case, the following symptoms call for the use of intestinal antiseptic. Diarrhea, excessively fetid stools, flatulence, abdominal pain, tenderness and distention, and to these may be added headache, delirium, aching bones, insomnia, and ataxic depression, symptoms due to the entrance of toxins from the alimentary canal into the blood.”

In typhoid fever my success with the sulphocarbolates has been paralleled by many others, with salol, beta-naphthol, resorcin, betol, and recently with the new bismuth compounds, such as beta-naphthol bismuth. As in all continued fevers the secretion of the natural antiseptics, the bile, etc., is in part or wholly suspended, the use of these agents is indicated. I am not, therefore, surprised to hear of their successful use in pneumonia and scarlatina, and will venture the surmise that in all continued fevers securing intestinal antiseptic will result in a marked reduction in the number and

gravity of the symptoms, by the elimination of all depending on the absorption of toxins from the alimentary canal.

In anemia, chlorosis, malnutrition, headache, irritable stomach, melancholia and other nervous affections, great benefit has followed the use of these antiseptics.

When enteritis is due to putrid food, they are specifics.

Dr. William Hunter urges intestinal antiseptics for pernicious anemia.

Tuberculous enteritis has been benefited by guaiacol.

It is now claimed that other diseases are really caused by the absorption of toxins from the alimentary canal; and among these some writers place uremia, diabetes, some spinal affections and rheumatic fever. As to the last, it may be noted that our best rheumatic remedies are all intestinal antiseptics, the salicyl group, resorcin and acetanilid.

It is surely evident from this representation that the reproach on the modern germ theory, that it has not added materially to our therapeutic resources, cannot be admitted as regards diseases of the intestinal canal. The principle is full of promise for the future.

103 STATE STREET.

IMPROVED SPLINT FOR COLLES' FRACTURE.

BY J. J. LARKIN, M. D., CHICAGO.

Perhaps I should apologize to the society for discussing a subject so old and so well understood as Colles' fracture. The teachers and the books have apparently exhausted every phase of and peculiarity of the subject. Doctors have seen and treated this fracture during all ages. The laity have done the same.

A fracture of the radius in the lower third of its lower half in modern times has been designated Colles' fracture. In the vast majority of cases it is produced by falls upon the hand, and is the most numerous of all the fractures except that of the clavicle. It may occur at any time of life from childhood to old age, more frequently in old age.

The break at the wrist may be partial or complete, simple or compound, transverse or oblique. It may be comminuted or green stick. In fact it may be any of the various forms.

Muscular contractions invariably contribute to the production

and maintenance of the deformity in Colles' fracture, no matter what the variety.

Since this is true, the overcoming of the contractility of the muscles of the forearm, is one of the most important steps in treatment. In fact the only thing necessary after reduction of the deformity.

The operation of my splint is based on this theory: Extension and counterextension will correct in every case.

I need not dwell on the anatomy of the arm and wrist with which you are all familiar. Yet you will pardon me for calling your attention to a few important points.

The carpal bones articulate with the radius at its lower and larger extremity. The radius forms a large and important part of the wrist. Recall also that the ulna, through the triangular inter-articular fibrocartilage has a very infirm attachment here, and forms a comparatively small part of the wrist joint.

I would like to have you remember the two groups of muscles of the forearm. For our present purpose we will designate them, the anterior and posterior or the flexors and extensors. In addition, we have the pronator's in front, the supinators behind. By the peculiar positions and actions of these two, the pronators and supinators, they contribute largely to deformities in Colles' fractures.

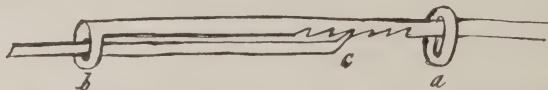
The plans of treatment at the present time are three, viz.: straight splints; long anterior and short posterior; or long posterior and short anterior. The pistol splint, and plaster splint, with their various modifications. All of these have been found defective, principally from the fact they do not produce the necessary extension, and partly from the fact that the necessary bandagings produce engorgement of the vessels, interfere with nutrition, making undue pressure on nerves and vessels and producing stiffening and ankylosis. In securing the necessary extension in Colles' fracture I do not put the patient to bed and place his arm upon a splint, pad or pillow with a weight and pulley, but I place on the arm a neat and comfortable dressing which he can wear inside of his coat sleeve with ease.

This splint has been tried and proven valuable—not in many cases, nor during many years to be sure, yet it has been tested several times with uniformly satisfactory results. I hope it will be tested by you so that our combined results may be estimated. No one, perhaps, will have a particularly large number of Colles' fracture to manage, because it is considered by the laity a relatively

easy thing to treat; requiring no special skill. And that any ordinary doctor can safely manage it, hence the cases do not go in considerable numbers to any one man.

So innocent is this injury in the eyes of the laity, that in most cases patients receive lay treatment before they reach the surgeon.

Woe to the doctor who hesitates or deliberates in assuming charge of this break. He exploits his own weakness and exposes himself to the uncharitable and ignorant criticisms of laymen.



A, movable ring to fix splint at ratchet C; B, perforated end through which splint glides.

Now the desire to escape such unpleasantness forces him to temporize at an important moment, and induces him to hold out an encouraging prognosis hardly warranted. These unguarded statements often come up afterward in courts of justice to plague and punish him.

I wish to make a practical application of the splint rather than spend your time in a description.

I take this thin board or shingle twenty-two inches long, four inches wide and with my pocket knife give it the following shape.



You see it is placed along the posterior surface of the arm and extends two inches beyond the finger tips, and two inches beyond the elbow. With these three strips of rubber plaster arranged about the wrist and carried out over the finger tips, the hand is securely extended, and the plasters are carried to the end of the shingle. Counterextension is secured by arranging the adhesive straps about the arm, below the elbow and carrying back upon the end of the splint, with as much force as seems necessary to overcome the contraction of muscles.

Now this wire loop is substituted for the shingle because it need go but to the tarsometatarsal articulation and slightly beyond the elbow. It has the advantage of exerting its force directly in the line of the bones, not upon the outside as is true of the shingle. The wire loop consists of two parts that unite midway between the curved extremities. They unite by means of a small loop and a rathcet is provided by which additional extension can be secured to compensate for the slipping of the plaster.

You see by the splint that I have aimed to overcome muscular contraction and that alone, my theory being that muscular contraction is the only influence in maintaining deformity in this traumatism.

It will be said our authorities do not hold this now. It is an open question if we have any absolute authority on this subject or on any other subject in medicine or surgery, because the views and practices and teachings of eminent men to-day are superseded by others to-morrow.

SOUTH CHICAGO.

A CASE OF SIMPLE IDIOPATHIC MUSCULAR ATROPHY.

By F. A. MCGREW, M. D.

RESIDENT STAFF, COOK COUNTY HOSPITAL, CHICAGO.

This patient, a German girl, twenty-one years of age left her home in Germany six years ago. Some two or three months before her departure the family physician was consulted regarding peculiar and distressing pains which the girl experienced about the right shoulder and in the right arm. Menstruation was established two years later, was suppressed after one year, amenorrhea continuing about a year, during which time she suffered considerably periodically from nosebleeds and general malaise. A few months after reaching this country, she noticed that she had difficulty in raising the right arm to her head. About a year later she noticed the beginning of an affection of the lower extremities. They ached, particularly after her day's labor in domestic duties. She became tired easily. Right leg first affected. The trouble became rapidly worse four years ago, after what is supposed to have been an attack of rheumatism. The next year she had a similar attack in the left leg. After this she noticed a difficulty in climbing stairways, rising from the chair, and rising from the floor or ground. A support of some kind became a necessity. Her left arm has troubled

her for about two years past. Her chief complaint when she entered the hospital was of pain about the left shoulder. Her family history is entirely negative.

Physical examination: Well nourished. Face well rounded and the picture of good health. Shoulders lap. Scapula rotated, the acromion being tilted forward, downward, and outward. On abduction of the arm, the scapula rotates still more, the inferior angle projecting strongly beneath the integument, so that a deep furrow is left behind its posterior border. The acromion drops still lower. She can abduct the arms only about one-third the distance from the body to the horizontal. But when the scapula on either side is fixed, especially if the lower angle be pushed well forward, she can then raise the corresponding arm to the horizontal. The middle portion of the trapezius may be felt as a round cord. No considerable amount of wasting is noticeable about the shoulders. The deltoid muscles are large, firm, and when used in attempted abduction very prominent. The biceps and triceps on each side are soft and flabby, and on the right the biceps cannot voluntarily be thrown into active, firm contraction. The forearms appear quite normal. There is nothing unusual about the hands.

Her thighs are noticeably wasted. She cannot rise from a chair without the help of some support. She says she falls forward, in spite of all she can do to prevent it, in ascending a stairway. There is no lordosis. That the muscles of respiration are involved may be inferred from her history of having been more and more troubled with shortness of breath for two years past. When she was admitted to the hospital dyspnea was one of her most distressing symptoms. We find she is unable to rise from the floor without the help of some support, and then only with the greatest difficulty. With all her effort, she is unable to get further than upon her hands and toes, with her hands supporting her from the floor.

Myotatic irritability is lost or diminished. Patellar tendon reflex is absent on both sides. Also the ankle reflexes. No reflexes can be elicited in the biceps, triceps, or at the wrist of either side.

Electrical excitability is diminished or lost. There is no response to the Faradic current in the biceps, trapezius, or triceps muscles of either side. It is retained in both the deltoids, diminished in the latissimi dorsi, lost in the extensors of the thighs, retained in the muscles of the forearms and legs.

There are no bulbar symptoms. The pupillary reflexes are normal.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH.
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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Society Proceedings.

THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held June 18, 1894, in Commandery Hall.

President Senn in the chair.

The minutes of the preceding meeting were read and approved.

The committee on membership reported favorably on the application of Drs. W. A. Evans, 581 43d St.; Cornelius Mackey, 1205 Wabash Ave.; Chas. F. Brown, 721 W. Van Buren St.; and J. F. Choatal, 4815 Ashland Ave.; and on motion the Secretary cast the ballot of the society for their election.

The applications of Drs. H. H. Forline, Wm. H. Rumpp, C. H. Pusey, Parkside; and I. B. Washburn, Rensselaer, Ind., were read and referred to the committee on membership.

EXHIBITION OF CLINICAL CASE.

Dr. A. J. OCHSNER: This is the patient whose upper extremity I exhibited at the last meeting; the operation for its removal was done eighteen days ago. The sarcoma, as you will remember, was attached to the spine of the scapula and to the outer end of the clavicle.

The operation was performed according to the method described by Paul Berger, consisting of an incision parallel to the clavicle. The incision was made down to the bone and the periosteum reflected. The subclavian vessels lie directly underneath

this bone and it is easy to insert a grooved director between the nerves and these vessels. At this point these vessels were ligated, which finished the important part of the operation. The vessels were then severed, the flap containing all of these tissues reflected backward, after the incision had been carried down into the axilla. Then the skin was reflected posteriorly and the scapula dissected up from behind. The important part of the operation is ligating the vessels and applying clamps on the distal end to prevent hemorrhage from that side, which is quite considerable, especially as in this instance we did not include the arm in an Esmarch bandage. After this the wound was closed.

There is one point of importance I wish to bring out in connection with this case. In quite a number of operations upon the upper extremity, or the lower extremity, high up, I have noticed each time that in severing the tissues containing the important nerve, the shock was not extreme until the nerve was drawn down and severed again by means of scissors. I made use of this observation in this case by using a sharp knife to resect the nerve, and the amount of shock to the patient was practically nothing. He wanted to sit up the next day and has been up and dressed since the fifth day after the operation. You will notice that the wound has healed except here where a small portion of the skin became gangrenous, probably from too great pressure of the bandage. I inserted drainage tubes at the lower angle of the wound and through this incision, opposite the point formerly occupied by the angle of the scapula, which were left in place for four days when they were removed and the stitches were removed on the seventh day.

A patient on whom I performed this operation for sarcoma three years ago is still living and in good health.

SPINA BIFIDA.

Dr. L. L. McARTHUR: Gentlemen I beg to present to you a case of spina bifida in a little child, of especial interest from the fact that it was operated fourteen hours after birth, the operation being done because the sac which covered the cord had ruptured. The cerebro-spinal fluid was running out. As it had been discharging for a few hours before it was discovered, and was probably infected, it was deemed wise to trust to radical procedures rather than to run the risk of septic infection. The portion of the sac not covered by integument was dissected off, the membranes brought together laterally, and closed with a Czerny-Lembert suture, that is, two rows of sutures. The membranes were turned

in so that the external raw surfaces uncovered by epithelium should come in contact and in that way secure a broader base of adhesion and form a better support posteriorly. Then a transverse incision two and a half inches above the denuded cord was made and a flap of skin and cellular tissue dissected up, which was adherent at both ends laterally, and pulled down over the sutured dura. This served to give it a good support by having a cutaneous lateral attachment. The raw surfaces above the site of absence of the bony wall was undermined, and by stretching a little this also was brought down so that the wound presented two linear incisions, as you will see when the baby is passed around. There still remains a slight spinal hernia, but the child has thriven, presenting nothing further of special interest unless possibly the tendency to hydrocephalus, which has been very much less marked in the last three months than it was in the first eight or nine weeks of its life, the head having assumed a more natural appearance and the prominent fissures between the bones having disappeared. In connection with this case there was the usual complication of irritation of the nerves of the lower extremity and a double talipes, which has been corrected by plaster of Paris casts.

OSTEO-SARCOMA TREATED BY TOXINES.

This patient three years ago noticed a growth on the dorsal aspect of the radius of the right arm. She consulted Dr. Fenger, whom she states pronounced it an osteo-sarcoma, and who removed the upper portion of the radius, the patient objecting to amputation. This operation was done a year and a half ago and within six months from that time there was a recurrence. She consulted Dr. Steele, who advised amputation, but this was refused by the patient. Some time after this she went to Michael Reese Hospital and was referred to Dr. Wyllys Andrews, who is on duty there. He repeated Dr. Fenger's operation in an attempt to remove the entire growth and yet save the arm. This operation was performed on the eighth of last February and within five weeks there was a marked recurrence and the patient becoming quite discouraged decided to have nothing more to do with doctors. She was finally sent to me, with the history I have given, still objecting to amputation, so I resorted to the toxines which were then being urged by Drs. Coley and Bull, of New York. This much can be said, that a malignant neoplasm of the forearm involving the lower extremity of the radius, and of that markedly vascular type which so frequently characterizes the sarcomata and osteo-sarcomata, a pulsating growth in part, has, under these injections, disappeared and

the patient feels so well that she wishes the injections discontinued. But as there remains considerable thickening of the bone and some of the soft tissues, and as it is not yet known whether the toxins have any marked effect upon a calcareous deposit, that is upon the changes in the bones produced by osteo-sarcomata, I have urged her to continue the injections. There has been a marked diminution in the size of the growth and it has none of the characteristics it formerly had. These injections were begun with five minims of the solution given on alternate days, and this was increased until the temperature reaction reached 100° to 101° , sometimes 102° , so that finally the amount of toxin given was between 25 and 35 minims, which was the largest dose she has received. In my limited experience, the average dose which will provoke a temperature is about 15 minims, which as a rule will produce a temperature of 100° to 100.5° , followed by marked sweating, a sense of lassitude, some headache, sometimes vomiting, and within three or four hours it will all have passed off. In cases under treatment by Dr. Bull I noticed that he usually gave the injection at one o'clock in the day and the patient was ready for six o'clock dinner, the effects having passed off by that time. In this case the injection was given in the arm above, occasionally near and sometimes into the growth.

GRANULOMA DURAE MATRIS, NECROSIS CRANII, PLASTIC OPERATIONS ON
THE SKULL.

Dr. CARL BECK: This lady was sent to me about four months ago with three very ugly looking and badly smelling ulcers on her head. They were of the size of a dollar. The bone was laid bare to that extent, and a very profuse discharge of pus came out of the numerous small openings in the carious skull.

Upon examination I found the bone was necrotic to a greater extent than these three ulcers showed. We resorted to elimination of the necrotic bone. Upon removing the skin we found the bone necrotic to the extent of five and one-half by four inches. After removal of the bone we found a growth underneath which had the appearance of a sarcoma, though it seemed probable it might be a syphilitic process, but the history of the lady did not give any clue to previous infection, which she denies, and she has no signs of syphilis. She has given birth to a healthy child, and her husband is perfectly healthy.

Microscopic examination of the tumor shows large spindle cells and embryonal cells intermixed, and some tissue formation on the extreme parts. The whole tumor was like a fungus over the

dura, it was easily peeled off, and only in one place was it closely adherent, therefore I did not do anything but remove the whole granulomatous tissue and the dura was laid bare to that extent. The bone all around seemed healthy after the removal of the necrotic piece. The question then was where to get a covering for this large defect in the skull. I at first tried an autoplasic Müller-Koenig flap operation, but after two hours work gave it up because the bone was so brittle that it did not cohere in a plate, and sutured the flap to its old place again where it healed by primary union.

Since the autoplasic operation was not successful I then tried a heteroplasic operation. I chiseled from the skull of a dog a large plate with periosteum, and tried to transplant it, but the skull of the dog is very irregular on its inner surface, and would have irritated and I gave that up also. The next step was to try the dog's ribs, which are very close together, and if these had healed in it would have given a good covering, but in about five days after the operation sloughing began in some places and I was forced to remove them. Then there remained nothing but the Tiersch grafts, and later on a metallic plate for protection. I put on Tiersch grafts which healed, but now there has developed something which I consider very important, that is, plates of bone have formed between the Tiersch graft and the dura, at first as large as a dime, then one grew against another until they formed a firm union. The explanation may be that here the dura acts as a periosteum, a process we sometimes find in pregnancy, hyperostosis gravidarum, and that this process took place here because the dura has been so much stimulated by scraping. As you see now the very extensive defect which we tried to cover in vain, has been covered to a great extent by nature.

Dr. J. C. HOAG read a paper, see page 17, entitled

CÆSARIAN SECTION, WITH REPORT OF A SUCCESSFUL CASE.

Dr. BYRON ROBINSON: I have never done a Cæsarian section and have only seen one done. Prof. Carl Braun cut into the abdomen, turned out the uterus onto the abdomen, put on a very large rubber ligature, cut a little piece into the uterus and then tore the rest with his fingers, just as Mr. Tait does. Braun used silver wire sutures. In Braun's case the child came out perfectly well and with good lungs. Nobody expected that child to die but it did shortly afterward, and about two days later the woman died of infection. I have listened to a great deal of talk about Cæsarian

section; I see they are doing it now in little country towns. I am convinced that with the modern epidemic of removing the tubes and ovaries, it would be better to do the Porro operation; if the epidemic for removing the appendages ceases, we could go back to Cæsarian section. But if we could get the reports of the great numbers who die we would have a different set of figures than those given to-night. I think it was Sanger who had eight per cent mortality, the lowest mortality of any single operator. In 1890 Mr. Tait had done twelve Porro operations without any deaths. I have never seen a case in which I would do Cæsarian section. There are numbers of cases where removal of the appendages does as much damage to the woman as the removal of the whole uterus would, therefore, I think Porro's operation would be the best for those women, and as safe for the child. I believe in the ligature, I do not believe it is possible in nine cases out of ten for a man to stop the bleeding of the uterine arteries with his fingers. In Braun's case I don't think it would have been possible to control the hemorrhage without the ligature. Mr. Tait always uses it in Porro's operation.

Dr. BARTHOLOMEW: About five years ago, in a town of 300 inhabitants, I did the operation in a tenement house of two rooms, perhaps ten feet square, in the middle of a wheat field, the operation being done on the kitchen table. The patient had been in labor twenty-four hours when I first saw her. The membranes had ruptured and she had been subjected to repeated digital examinations. She was fifteen years old. The condition necessitating Cæsarian section was an antero-posterior diameter of two inches. She was given a thorough scrubbing, placed upon the table, etherized and a four inch incision made through the uterus, which was not lifted out of the abdomen, and I don't see how it could have been without making an enormous incision. The child was delivered without difficulty and afterward the placenta. I had no trouble whatever in controlling the hemorrhage, and I certainly should not use a ligature. It is almost impossible to apply a ligature while the uterus is in situ before the child is removed and it is not necessary after the child is removed because hemorrhage can be controlled by bimanual pressure. The other steps in the operation were similar to the ones described to-night. The Lembert suture was used to close the uterus, which is a manœuvre of some little difficulty on account of the eversion of the edges of the peritoneal coat owing to the contraction of the uterus. Drainage was employed. There was not very much after treatment, it was similar to an

ordinary confinement, she was kept on liquid diet, the bowels moved on the third day, there was no fever to speak of and on the fourteenth day she was sitting up and four weeks after the operation was at her work. Two years after the operation she sent me a photograph of herself and baby and since that I have had an occasion to induce abortion for her at the second month. There is a question that is a little foreign to the subject under discussion and yet is connected with it, and that is whether I would have been justified at that time in removing the ovaries. I believe now that I would have been. I should certainly go to a Cæsarian section with as little fear as I would go to an ordinary ovariectomy, it is a much easier operation and under our present methods of asepsis I think probably quite as safe.

Dr. C. S. BACON: While the essayist is deserving of a good deal of congratulation for the successful issue of the case, there is one question, which is perhaps pertinent, that was not discussed in the paper; that is, the possibility of removing the tumor before the section, and in that way leaving the natural passage for the delivery of the child. From the report of the removal of the tumor it would seem as though the operation itself was not a difficult one, and as far as we are informed had the tumor been removed there would have been no difficulty in removing the child in the natural way.

In regard to the use of the elastic ligature, most of the recent discussions on the subject have been unfavorable to its use. Reports show that it is unnecessary.

Dr. H. T. PATRICK: Along with the happy results it may be well to mention an unfortunate case which occurred in this city some five years ago. The operator was the late Prof. Parkes, and as the case occurred in my practice, I may be permitted to mention it. The woman died on the fifth day, as I remember it, of septic trouble, and the child died two or three months later of summer complaint, being in very unsatisfactory hands. The case was in the care of a midwife, who had labored with it the better part of the night before I saw it, and with our knowledge of midwives it is fair to suppose that the parturient canal was far from being aseptic when it passed to the operator.

Dr. T. J. WATKINS: The tumor which was removed was extra peritoneal, and probably developed in the parovarium. It may possibly have originated in the paroöphoron. Parovarian dermoid cysts are of extremely rare occurrence. Lawson Tait, in

the *Edinburg Medical Journal*, July, 1889, and Säger, in the *Centr. f. Gyn.*, 1889, described such tumors.

In removing this tumor I did not enter the peritoneal cavity. No trace of the Fallopian tube was found in the pedicle of the tumor. The bony portion of the tumor was firmly adherent to the sac and the posterior vaginal wall.

Dr. NICHOLAS SENN: My experience in reference to Cæsarian section has been published, but there are perhaps one or two points upon which it would be well to place myself once more on record. In the first place, the removal of the uterus outside of the peritoneal cavity I would absolutely condemn as a preliminary to the delivery of the child, it would require such an enormous incision that it would be attended with unnecessary shock. I believe that the uterus should be invariably incised in situ.

As far as the use of the elastic ligature is concerned, I certainly should never apply it before delivering the child. I believe that by incising the uterus in the abdomen in the manner which I have described, that is, enlarging the wound by tearing and performing the operation quickly, the loss of blood is so slight that it would not require the use of a provisional hemostatic measure. After the child has been delivered it is proper to bring the uterus forward into the wound, and if hemorrhage is then troublesome, to apply a constricture to control it during the time required for suturing the wound.

Another matter of immense importance is the method of suturing. I have been somewhat astonished this evening to hear such expressions as Lembert sutures in closing the uterine wound. You must remember that sutures for this especial purpose are used, first, for hemostatic agents, as well as for the purpose of bringing the anatomical parts into position.

I rely upon the sutures exclusively in controlling the parenchymatous oozing and hemorrhage from large sinuses. I always bring the torn surfaces in contact and hold them by sutures, and for this purpose I invariably include all the tissues of the uterus, minus its peritoneal investment, in one row of deep sutures of catgut, absorbable sutures; placing the sutures so closely together that they fully control the parenchymatous oozing and hemorrhage from the sinues. But you will find that no matter how closely you place catgut sutures there is a little blood escaping between the sutures, I therefore pass over the first, or deep row of interrupted sutures, a continued suture of fine catgut, this brings the cut and torn surfaces in contact. These are the hemostatic sutures. Then for the purpose of

preventing peritoneal sepsis, and securing large serous surfaces I invert the peritoneum on each side, and for this purpose use unabsorbable sutures, because these sutures will become encapsulated; they are outside of the uterine cavity and will be outside of the peritoneal cavity, and hence are in a favorable position for encapsulation. These sutures are of silk. Over this row of interrupted sero-muscular sutures I again apply a continued suture of fine catgut. This makes four rows of sutures. I believe this is the only way in which you can close a uterine wound safely and sufficiently for this particular indication.

Dr. J. C. HOAG, in closing the discussion said: With regard to the choice between the Porro operation and what is now termed the improved Cæsarian section, as nearly as I can learn, the Porro operation is being less and less practiced. There is no doubt but that it will always be the best operation in some cases, for instance where sepsis has occurred or where the tissues are in bad condition for union, but it is being less used and the so-called Cæsarian section is coming more into vogue. As to whether one should leave the uterus inside the peritoneal cavity, or bring it out and use the ligature, or whether any operation should be done without ligature, it will be necessary to wait until we shall have a large number of cases operated upon according to the most improved methods, before we can make a definite choice. If I had a similar operation to do again, I think my preference would still be to remove the uterus from the abdominal cavity, and then to place elastic ligature, or something else, in a position where it could be quickly tightened if occasion required. I am satisfied one cannot in all cases sufficiently control hemorrhage by manual pressure, because I failed in this myself. I think, however, I would not have had so much trouble with the hemorrhage if I had closed the wound sooner. My sutures were in position before the elastic ligature was removed, and if I had tightened the sutures at once, there would have been much less loss of blood. On the whole, I like the operation we did very well, because the patient recovered. If my patient had died I might have thought some other operation was better.

Dr. M. L. HARRIS read a paper on the

OPERATIVE TREATMENT OF IRREDUCIBLE AND OLD UNREDUCED DISLOCATIONS OF HIP, WITH CASES.

Dr. EDMUND ANDREWS: This is a subject of considerable difficulty not altogether for want of work of the profession on the sub-

ject, but because the introduction of railroads and the machinery of great factories, has increased traumatic surgery, in certain directions, and relatively diminished dislocations of the hip.

In looking literature over I have been struck with the almost total absence in this country and Europe of collections of arthrotomies which are continuous in one hospital, so as to get at reliable results; they appear to be mostly picked up here and there and give delusively favorable results. One important point referred to by the speaker, is the position of the incision in arthrotomy for this trouble. At first, almost every one went in on the posterior side of the trochanter, and as the majority of dislocations were backward they could not sufficiently uncover the acetabulum, because that cavity lay in front of the incision. Only two or three of the earlier reporters had the wit to make their incisions so as to uncover the acetabulum, and those two or three were the only ones that succeeded in getting the head of the bone back into place. If you will bear the remarks of the essayist in mind and make your incisions so as to uncover the articular cavity, you will have a better result and fewer failures in getting the head of the bone into place. It will not however, be correct to assume even if you do uncover the acetabulum and gouge out the new growth in it, that you will succeed in more than a part of the cases. Volkmann, Hamilton, and Antoine cut both sides of the trochanter and all around the top, separating the muscles, and some of them separating all the ligaments, and then they could not get the head back. The reason that impressed them was that in ancient dislocations the head of the bone is gradually drawn far up by the contraction of the muscles, especially the glutei and the three adductors, and their resistance becomes so fixed and powerful that though you may uncover the acetabulum, dissect off the adherent ligaments from it, and scoop out the contents of the cavity, you may not be able to get the head down to the proper level.

Enough has been gathered to render it evident, that a few of these dislocations can be reduced by manipulation; but that great force is dangerous to life and may be followed by rupture of the great vessels, injuries to the great nerves, fracture of the bone or other fatal mischief.

Reclus and others are of the opinion that in ancient dislocations of the hip we have to choose between five courses.

1. If nothing obviously prohibits, manipulation can be tried, supplemented if you choose by that powerful, but obsolete old

American apparatus, called "Jarvis' Adjuster." The force used should be moderate, and only a few cases will succeed.

2. If this fails, and if the limb is in a tolerable position, that is, if it is not excessively flexed, abducted, nor adducted, and if the head of the femur does not press injuriously on the sciatic nerve, the head of the bone had better be left where it is to form a new joint, which is often one of unexpected excellence for use in walking.

3. If the effort at reduction has failed, and if the position of the limb is too faulty, arthrotomy should be performed. There will be some danger, but not so much as to prohibit the operation.

4. If the arthrotomy fails to enable the operator to replace the head of the bone in the acetabulum, as it sometimes will, one can sometimes by excising the head of the bone close to its attachment to the neck, insert the stump of the neck into the acetabulum. At least this has been done and good results claimed, but if this does not seem best, osteotomy should be performed, and the limb brought down to a good position.

5. If the manipulation has failed and the head of the bone presses on an important nerve, it is absolutely necessary to make an excision of the caput femoris.

Dr. L. L. McARTHUR: Up to the time of Bigelow and Gunn, who, independent of each other, showed the mechanism of hip-joint dislocations and their methods of reduction, it was not uncommon to have irreducible or old dislocations of the hip under observation; but their number has materially decreased since the knowledge of the mechanism of dislocations has become so clear, so largely a matter of physics, not of physical strength. Before the investigations of Drs. Bigelow and Gunn about 1876, operations were, of course, counterindicated because of the lack of knowledge of antisepsis, and the great danger of such extensive surgical wounds. The question naturally suggests itself in listening to this paper: what is to be considered an old dislocation? If it is true, and I have no doubt it is, that within eight or ten weeks the acetabulum may be completely filled with granulation tissue, and at the end of two and one-half months be practically wanting, it is absurd to make attempts either with the force of compound pulleys, or by skillful methods, and therefore one will be driven to operative measures, unless he recalls the fact that when a dislocation has been long out of its normal position, a year or two, that nature has made an artificial joint, which approximates very closely in value that which the surgeon may at that remote date from the time of

injury, secure for his patient even by operative means, and in that way be deterred from interfering.

Regarding operative interference I recall the fact that an operation is coming into vogue for reduction of hip joint dislocations which properly cannot be classed as old, that is, congenital hip joint dislocations. Ninety per cent of all dislocations that occur congenitally are of this joint. The vast majority of them, strangely enough, are overlooked until they are old; possibly not strangely either, because the child is not expected to walk. The operation consists practically in the one suggested by Dr. Harris, curretting out the acetabular cavity where it normally should exist. The reports of orthopedic surgeons, on the half dozen operations that have been made, are gratifying enough to make one believe that there is a very decided future for this procedure, although it will be in a limited number of cases.

Dr. J. E. OWENS: I must express my appreciation of this paper which I consider a valuable contribution to the subject of the reduction of ancient dislocations. Since methods of manipulations rather than those of extension are so much in vogue, and so very well understood, few dislocations escape reduction. So far as the definition of ancient dislocation is concerned I hardly know what to say; it is a little like a woman's age, she never becomes ancient. We cannot judge by the number of years when a dislocation becomes ancient, but I think it should rest more on the condition of the part, that is, where the acetabulum has been changed not only as to its bony elements, which, if I remember correctly, may be such as to give the acetabulum an oval shape; or such as to cause elongation or introversion in addition to the occlusions produced by granulation tissue and the usual cicatrices, which are so dense that they must be scooped out before you can get room for the head of the bone.

Then there is another element, in an ancient dislocation, and that is, that which obtains in clubfoot. In a general way, those tissues which are relaxed, and muscles whose origin and insertion become approximated, owing to the malposition of the foot become shortened or contractured. The same takes place in the hip joint. As has been stated these muscles have to be divided, and if that is not possible the removal of the head or a subtrochanteric resection must be performed.

I have had no practical experience in the reduction of old dislocation by operative methods; I have never been allowed to perform the operation, although I have urged it in a few cases, but the

patients preferred to carry the limbs which they thought more or less useful as they were. So far as the incision is concerned I would be disposed to make it more with reference to the neck and greater trochanter than to the position of the acetabulum. We would have a great deal to do with the neck, head and trochanter in the operation, and if we are not able by this incision, which is parallel to the bony structures, to reach the acetabulum, we can do as the late Prof. Parkes did, namely, make an incision forward from the long incision. In both of his cases the incisions were made immediately back of the great trochanter and he got gratifying results.

I am very much surprised theoretically that we can do so much with the head of the femur and its neck; strip the trochanter of its muscles with the view of getting the head of the bone in place; scoop out the acetabulum and bite away its contracted and introverted margins as necessity requires, and that such patients get well with a good and movable limb without caries or necrosis, when in so many cases the mere slipping of the limb in an outward direction would be sufficient to cause a traumatism of the hip joint and perhaps subsequently, in many cases, tuberculosis. We know that minor injuries, even subcutaneous in character bring about caries and necrosis in the adult very frequently. Of course we must attribute these results to well and faithfully carried out antiseptic surgery. But while I have as much appreciation of the results of antiseptic surgery as any one, I feel that there is something wrong in our statistics; that such disturbances as have been named are likely to follow in the joint, and that the uniformly good results that have been reported are likely to be marred by further investigation.

Dr. M. L. HARRIS, in closing the discussion said: The title of the paper should have read on the announcement, "Irreducible Dislocations," as well as old dislocations because the operation is not only proper for old dislocations but for recent irreducible cases. I think if Prof. Owens ever operates upon these cases and makes an anterior incision he will quickly see the advantage of the incision approaching the acetabulum. Every operator making the incision approaching the head and neck has invariably met with difficulties and nearly all the failures have been from that fact. The incision should certainly be made where it will lead directly to the acetabulum, and there most of the work must be done; the head and neck are very easily reached.

Dr. N. H. PIERCE exhibited a specimen of carcinoma laryngis. There were ninety members and visitors in attendance. On motion the Society adjourned.

JUNIUS C. HOAG,
Secretary.

A regular meeting was held July 2, 1894, in Commandery Hall.

In the absence of the President, Dr. Sarah H. Stevenson was called to the chair.

The minutes of the preceding meeting was read and approved.

The Committee on Membership reported favorably on the applications of Dr. C. H. Pusey, Wm. H. Rumpp, H. H. Forline and I. B. Washburn, and on motion, the Secretary cast the ballot of the Society for their election.

The applications of Drs. L. F. Woodruff and W. S. Magill were read and referred to the Committee on Membership.

PRESENTATION OF CASES.

Dr. ARTHUR DEAN BEVAN: This case is one of psoas abscess treated by Neves' method. The history is briefly as follows. This man thirty years of age suffered for a year with pain in the back and general debility; patient has tubercular epididymitis. Three months ago was sent to the Presbyterian hospital where he was at first treated on the medical side, later was transferred to surgical service. On examination found patient much emaciated, irregular temperature between normal and 103, large psoas abscess on right side. I did a Neves' operation which is done in this way: An incision is made extending from the last rib to crest of ilium about two inches and a half from the spinous processes. The division of the integument and superficial fascia exposes the superficial layer of lumbar fascia and the trapezius muscle. The division of these structures exposes the fibers of the erector spina muscle which is drawn to the inner side. In front of the erector spina muscle is the second layer of the lumbar fascia attached to the apices of the transverse processes, this is divided and the quadratus lumborum muscle is exposed; with a director or finger the muscular fibers are separated in a line parallel with the skin incision and close to the transverse processes. This now exposes the anterior layer of the lumbar fascia which separates the quadratus lumborum from the psoas sheath. The division of this structure exposes the abscess wall. The lumbar arteries are the only structures of importance to

be avoided in the dissection. These vessels are sometimes in front and sometimes behind the quadratus lumborum muscle, they can be avoided by opening the abscess opposite the tip of a transverse process. The contents is washed out with hot bichloride solution, any diseased bone present removed with forceps or sharp spoon, the lining membrane of the abscess cavity is scraped off with a blunt curette; this must be done with great care else the iliac vessels may be injured or the peritoneal cavity opened, I have lost one case from fatal secondary hemorrhage from the common iliac vein. After the curetting, the cavity is scrubbed clean with small gauze sponges on a sponge holder, is again irrigated and thoroughly dried. This part of the operation is not complete until the hemorrhage which may be considerable has been entirely checked and the cavity perfectly dry and perfectly clean. The cavity is then filled with several ounces of iodoform and glycerine emulsion, the incision is closed, no drainage.

In this case three pints of caseous tubercular fluid was washed out, there was some discharge until the fifth day, there has been no accumulation of fluid, the temperature fell at once to normal. In six weeks the patient has gained thirty pounds. I have obtained much better results with this operation than by any other method of handling psoas abscesses. I present this case which is particularly satisfactory in its outcome because I believe that Neves' method should be more generally known and employed.

This is a case of traumatic aneurism of the femoral treated by the method of Antyllus.

This young man, twenty years of age, six weeks ago received a penetrating wound from a piece of glass, on the upper and inner aspect of his left thigh. Bleeding was rather profuse, but was readily controlled by bandage. Was sent to Cook County Hospital; was discharged after two weeks with small, suppurating sinus. Some days later he noticed that the swelling at the point of injury had increased much in size, and he was brought to the Presbyterian Hospital. The condition, that of traumatic aneurism of femoral was evident. The operation disclosed these facts: The aneurismal sac was composed of the deep fascia, the sheath of femoral vessels and the intermuscular septa. The sac was filled with blood clot. Upon turning this out a wound three-fourths of an inch in length was found in the anterior wall of the femoral artery, the femoral vein was to the outer side and the anterior saphenous nerve between and in front of the vessels. The artery was ligated above and below the wound, and divided between the

ligatures in order to permit of retraction. The aneurismal sac was not dissected out. The original wound was infected at time of operation; as a result the operation wound was drained, suppurated some, but is now healed. It is interesting to know that such an extensive wound of the femoral can occur without more hemorrhage, or indeed fatal hemorrhage. The direction of the wound in the vessel parallel with the muscular fibers probably explains this singular fact.

The committee appointed to inspect the smallpox hospitals made a report, and on motion, the report was accepted and the committee continued.

Drs. F. A. MCGREW and SANGER BROWN, see page 109, presented

A CASE OF IDIOPATHIC MUSCULAR ATROPHY.

Dr. SANGER BROWN: As this patient is very well nourished, the atrophy is not so apparent as it might be in an older person in whom the amount of adipose tissue was not so great. For obvious reasons we can only show the amount of wasting in the upper region, and indeed, we can only demonstrate by the patient sitting down and getting up, the weakness in the muscles of the lower extremities. You can see that the muscles of the upper arm are considerably wasted, and that there is an apparent hypertrophy of the deltoid. You will notice that when she attempts to lift the left arm the scapula is not supported by the serratus magnus as it normally is, and on that account it falls away from the thorax. The right arm is more atrophied than the left. There is no atrophy of the hand and forearm; they are perfectly natural, and the grasp is very good. The wide separation of the scapula here is very apparent, and there being nothing to hold the scapula in position, the deformity is very characteristic. There is no deformity apparent in the face.

In considering this case it may be said that it is a very rare disease. There are two principal diseases in which muscular wasting is the predominating symptom; progressive muscular atrophy of the spinal variety, and progressive idiopathic muscular atrophy. Of the latter there are two varieties described; pseudo muscular atrophy, and simple idiopathic muscular atrophy. In meeting with a case where the muscles are greatly wasted we have to think of these three conditions. First, we are well aware that nourishment of the muscles depends upon the integrity of the cell of the anterior horn of the cord and the fiber running out from it to the muscle. In the spinal form of progressive muscular

atrophy, of course, there is disease and slow wasting of the cells in the anterior horn. But the characteristic of this variety is that there is no defect whatever in the cell of the anterior horn, that is, the disease affects primarily the muscles, which makes the disease peculiarly interesting, as it is opposed to what we would expect, and what we have in other forms of muscular wasting, something wrong with the cell in the anterior horn. Now, how are we to distinguish one from the other? Simply by clinical phenomena. The spinal form begins rather late, as a rule after adult life has been reached, and usually no heredity can be traced and the distribution of the disease is different from that which obtains in the idiopathic form. In the spinal variety the wasting begins in the majority of cases in the muscles of the hands, while it very rarely begins in the hands in the idiopathic form. In the spinal form there is evidence of disease of the cord affecting the pyramidal tracts; because there is almost invariably an increase of knee jerk, the disease usually beginning in the cervical enlargement, and affecting the pyramidal tracts, that is, extending beyond the anterior horns laterally. And as it affects the pyramidal tract it causes a weakness of the legs and an increase in the myotatic irritability. Those are some of the striking points of the spinal form of the disease.

In the idiopathic form where the disease begins in the muscles, we have other characteristics; almost invariably there are a number of the same family affected. In this form there are two groups, one a pseudo-hypertrophy which consists of an abnormal growth of interstitial tissue in the belly of the muscle with a disposition to the formation of a considerable amount of fat, whereby the muscles at first become larger than normal. That form usually begins in childhood when the child is learning to walk, but may begin as late as the twelfth year. The first symptom which attracts attention is usually the enlargement of the legs. The disease is of slow progress, and usually the child is late in learning to walk. After the calf muscles the next in order to be enlarged is the infraspinatus. This form almost invariably descends through the mother, but males are much more frequently affected than the females; the proportion varying from four to one, to seven to one according to the computation of different authors.

This case is a type of the idiopathic form, except there is no heredity which we can trace and it will therefore have to be regarded as an isolated case. In this form the disease usually begins in the biceps and triceps, the deltoid being unnaturally enlarged.

Whether it really is or only appears to be enlarged is uncertain, but it is usually described as being somewhat enlarged. In this form the disease begins late in life, from twenty to forty years, but it may begin as early as fifteen. So after all there are pretty clear distinctions. In this form too the increase of interstitial tissue and formation of fat is not observed, the muscles diminish in size and strength from the first; the legs are attacked above the knee and very rarely below the knee, and usually the muscles below the elbow escape. The greatest variation in this disease is observed in females and in isolated cases. It is quite difficult to classify sharply these isolated cases, but in this instance I think the fact that the disease began late, that there is no evidence of there having been hypertrophy at any time, that the disease began in the biceps and triceps and left the deltoids enlarged, warrants us in classifying this as a case of simple idiopathic muscular atrophy.

Dr. H. T. PATRICK: I do not think there is any doubt about the diagnosis of this case, but I should like to say a word about the classification of these cases, and in this I cannot entirely agree with Dr. Brown; at least I do not think we are in a position to be so positive in our classification. In the first place the division between the spinal type and the muscular dystrophies, or the idiopathic muscular atrophies is pretty well drawn and rather sharp, but we must remember that recently Bernhardt and Hoffman and Strümpell have presented transition cases of the spinal type, that is, presenting the spinal lesion and also presenting the family type with all the clinical symptoms, which would indicate a transition between the two. And Londe, of the Salpêtrière, has presented two boys, brothers, who had clinically the Landouzy-Dejerine, or facio-scapulo-humeral type, but in whom the lesion was certainly bulbar and pontine. So I think we are past the stage where we can draw the line sharply between the spinal and muscular types, but have not arrived at the time when we can say what the relation may be between these two types of muscular atrophy. I do not think there should be any division made between pseudo-hypertrophic paralysis and simple muscular dystrophy because in some cases that are considered typical of the pseudo-hypertrophic form there may be no hypertrophy whatever, and in some cases that were formerly classified as simple atrophy we may have hypertrophy. Dr. Brown stated that in the pseudo-hypertrophic form the hypertrophy was the first thing noticed. That is not invariable, sometimes weakness precedes the hypertrophy of the muscles. In regard to the hypertrophy of the deltoid, and the same might

be said of the triceps, I think we should be extremely careful in saying that there is a hypertrophy. I have seen a number of cases in which, at first sight, they seemed to be decidedly hypertrophied, but a closer examination convinced me that those parts were simply slower in atrophying or had remained normal. That the atrophic process picked out the muscles surrounding the deltoid, which allowed it to stand out from the atrophied muscle in a way that would lead one at first to suppose it was hypertrophied. I do not agree with Dr. Brown that pseudo-hypertrophy consists altogether in an increase in interstitial tissue and fat. There is also in some cases a true hypertrophy of muscular fiber.

Dr. SANGER BROWN, in closing the discussion, said: I think in these degenerative diseases, diseases of the cord, Friedreich's disease, for instance, as well as in this disease the classification has not been very thoroughly settled as yet; it is too early in the study of the disease to draw hard and fast lines of classification, but it is very important as being conducive to profitable study to maintain as rigid a type as we possibly can, and not to modify the type until a number of exceptions have accumulated. We ought to be slow to erect a type and then be equally slow in modifying it. This holds good throughout the study of medicine or any other science.

With regard to the pathology I was aware that certain slides have been prepared of apparent muscular atrophy in which the muscular fibers were shorter and thicker than they normally are, both in pseudo-hypertrophy and in the simple form, but I lean to the suggestion made regarding them that such shortening and thickening was in some way due to the preparation, because I cannot conceive how there could be any considerable over-nourishment of the muscular fibers without increase in strength.

Dr. G. FRANK LYDSTON read papers on

RESIDUAL URINE, AND PERINEO-URETHROTOMY.

Dr. WM. F. WAUGH read a paper, see page 102, on

TREATMENT OF THE SUMMER COMPLAINT.

Dr. ELMER LEE: I heartily commend the broad principle of the doctor's paper in which he establishes by his experience the value of internal antisepsis. I differ from him, however, very decidedly in the manner of securing it. I have not much faith in the value of the remedies he uses; their names are interesting and numerous but I do think that seriously they have any material effect upon the septic condition of the intestinal canal, and for

these reasons: First, my experience. Second, the enormous capacity of the intestinal canal and the very small amount of the remedy that is administered. In cholera we know medicine has no effect whatever, it has been demonstrated beyond the possibility of doubt; there was not a single internal remedy in the entire pharmacopeia that had sufficient antiseptic effect upon the canal to warrant its continued use. In a series of experiments backward and forward, trying old remedies and new, salol, the vaunted remedy, was brought forward and used very extensively, but the gentlemen who invented salol had not in the end the slightest belief in its value.

I believe that internal atisepsis is the proper way to treat not only summer complaint but all diseases of the intestinal canal, but the antiseptic remedy, I believe to be all sufficient, is pure water, to be administered both by the mouth and by copious and free injections by the rectum. I have never required any other remedies in the treatment of these cases, and my experience has been very satisfactory. As to the control of fever, let me add one word; wrapping the patient in a wet pack is superior to all drugs, both for the comfort of the patient and the rapid cure of the fever. The wet pack is superior to immersion in a tub of water, superior to bathing with a sponge or cloth. Then my remedy for summer diseases would be the internal and external antiseptic effect of pure water. Bowel irrigations, either simple water or water with common salt added or anything else you may choose, but liquid soap and water is the most effective. And, for internal treatment sulphocarbonate of zinc or soda.

Dr. L. HARRISON METTLER: As a result of considerable experience in treating these diseases, I, like the last speaker, have lost faith in many of these antiseptics, and have almost come to the conclusion that the real good the antiseptics are doing is in causing us to withhold the old opium, bismuth and chalk mixtures. I think the latter should be most emphatically condemned as a treatment for these troubles, and yet they are frequently used even to-day. I remember very distinctly the first case I treated which was one of severe cholera infantum, placed in my hands by my preceptor while I was a medical student. I tried everything I could think of but the patient seemed to be growing steadily worse; I called three or four times a day, and as a last resort, in my despair I told the family to let the child drink freely of water, to wash out the bowels and to stop all medication at once. Under this treatment the patient improved and finally got well. A few years

ago a case was left in my hands by another practitioner; it had been given up by him and the parents; everything in the way of treatment known at that time had been tried. As a last resort I suggested to the family that we starve the child. They objected, but I said "we will give it nothing but a little barley water, or possibly gum arabic water." I washed out the bowel, rubbed the child in olive oil and did nothing more. There was slight improvement immediately and the child finally got well. From my experience the practice of leaving these cases rigidly alone with the exception possibly of a little calomel to sweep out the bowel and the avoidance of much medicine is wise. I think it is a good rule that the less medicine used the better, and I have about formulated in my own mind the treatment for cholera infantum as threefold: First, rigidly exclude all milk from the diet. Sometimes to impress the family I tell them we will have to starve the child for a couple of days giving only a little barley water or rice water. Second, copiously flush the bowel and allow the child to drink freely of pure water. Third, if there is coma, emaciation, wasting or anything calling for stimulation to stimulate freely. These are the three points that have given me the greatest success in treating these cases. I believe that many cases of supposed cholera infantum are really typhoid fever, but it is difficult to separate one from the other. Whichever they may be I think if we leave medicines alone to a much greater extent than we are doing now-a-days, shut off milk from the diet, flush the bowel with pure water and stimulate fully, we will get as good results as by the use of intestinal antiseptics.

Dr. F. S. CHURCHILL: The use of antiseptics is undoubtedly indicated, but I can mention only the treatment that has been in vogue at the Chicago Polyclinic for the past three or four years. We see a great many cases there every summer, and almost without exception every case that comes in is put at once on a purely starch diet, absolutely nothing being given but rice water. Large doses of calomel are also given, an infant of six to nine months receiving a grain of calomel every four hours, and in addition it is given copious enemata of plain warm water, and is allowed to drink as much sterilized water as it wants, but it is given absolutely no food except rice water. As far as the child is concerned I do not think there is any necessity of giving the rice water, but it is easier to carry out the treatment if something is given. The results of this treatment have been very satisfactory; the mothers are instructed to come back the following day and they invariably report that

there is no change in the character or number of stools, except possibly a greater number, but they say the child is better, and when asked in what way, reply that it has slept better, is not so restless nor fretful. Then in a few days the stools begin to assume their normal character, diminish in number and improve in consistency and color and odor, and the child is gradually put back onto its ordinary diet. Children on the bottle are more easily treated than those on the breast, because we can absolutely prohibit milk in the bottle.

Dr. W. F. WAUGH, in closing the discussion, said: The doses of one-sixth of a grain, Shaller's, are for infants a month old; for little children my dose is from one-half to two grains, and with adults there is no difficulty in giving sulphocarbolate of zinc in ten grain doses up to one hundred grains a day. I could give more, but I have not met any case in which the stools were not deodorized, the flatulence relieved and the fever subdued by less than 100 grains daily. Whatever we may think as to the possibility of disinfecting the alimentary canal, the fact remains that these symptoms do subside under this medication.

Water certainly relieves the symptom of fever, and as antiseptis strikes at the cause of fever, I think it is a little more in accordance with modern ideas of practice to strike at the cause rather than at a symptom.

On motion, the Society adjourned.

JUNIUS C. HOAG,
Secretary.

THE CHICAGO PATHOLOGICAL SOCIETY.

A regular meeting of the Chicago Pathological Society was held Monday evening, June 11, 1894.

The President, Dr. R. N. Hall, in the chair.

In the absence of the Secretary, Dr. G. W. Cleveland was appointed Secretary pro tempore.

PREGNANCY COMPLICATED BY OSTEO-SARCOMA OF THE PELVIS, THE CÆSAREAN SECTION.

Dr. H. B. STEHMAN: The case I am about to report, I think should be regarded as a successful case, the patient dying one week after the operation owing to an accident which occurred during convalescence, and which is liable to happen in any case of

abdominal section. For while she died as the result of acute infection, the uterine cavity, as shown by the post-mortem was not only perfectly aseptic but the wound was completely united throughout, and all physiological functions fully established, having been so immediately after the operation.

Mrs. R., age twenty-seven, multipara. One year ago she noticed a firm tumor occupying the right iliac fossa, which practically remained stationary until the last three months of her pregnancy; during this period the growth became quite painful and her general health depreciated quite materially. By the completion of pregnancy the tumor was fully two-thirds the size of the impregnated uterus and occupied the pelvic cavity and nearly the entire brim.

Labor began about eighteen hours previous to my examination, when she presented the following symptoms: Patient quite exhausted, pulse 120, temperature 99°. The abdomen presented the appearance of that suggested by a ruptured uterus, with the latter in the left hypochondriac region, and the former in the right iliac region, for between the uterus and the mass there was a deep sulcus running obliquely across the abdomen. The cervix which could only be reached by bimanual pressure was dilated the size of a dollar, and from it protruded the cord which was pulseless, and the vagnia also contained considerable meconium.

After preliminary preparation for abdominal section the operation was begun with the assistance of Prof. Etheridge and Dr. Beech. The abdomen being opened a rubber ligature was put around the cervix, as owing to the size and shape of the growth it was impossible to properly secure the broad ligaments by manual pressure.

Broad pads of gauze were then placed around and underneath the abdominal incision and the bilateral pressure of an assistant brought the exposed portion of the uterus, even while in situ, as fully under control as though it had been removed from the abdomen.

A free incision was made in the uterus and the fetus and placenta delivered.

The endometrium was then sewed with catgut, and following this silk stitches through the muscular layer sufficiently close to nearly approximate this surface.

Then the constrictor was removed; there then being no hemorrhage the peritoneal layer was closed by Lembert sutures of chromic acid catgut.

The abdominal wound was closed in the usual manner without drainage.

Within twenty-four hours after the operation the pulse dropped to that of the normal puerperium and likewise the temperature varying about one degree above normal. By the aid of a cathartic the bowels moved freely, and continued to do so every day. The urine was normal in quantity and the lochia remained perfectly sweet throughout. On the fourth day the abdominal dressing became disturbed and the lower angle of the wound became infected: this rapidly grew worse within the next two days and fearing after infection I removed the stitches and applied adhesive strips, very firmly but in spite of this precaution the support was inadequate through inefficient pressure rendered by the plaster and the abdominal cavity became infected through separation of the walls, and peritonitis quickly followed.

The post-mortem shows as stated a mild purulent peritonitis with a beginning separation of the edges of the wound in the uterus, but otherwise no perceptible lesions.

The uterine surfaces were perfectly united and the uterine cavity aseptic, thus showing that the infection was introduced after the operation.

A CASE OF ACROMEGALY.

Dr. SANGER BROWN: As this patient goes out from the hospital in a few days I wish to show him to the Society, and will give a brief sketch of his history. He was born in Pittsburg, Pa., thirty-six years ago. He is temperate, has been correct in his habits and has enjoyed good general health for the most part. There is nothing in the family history which throws any light upon the subject of his disease, except it be that his mother has a brother who is very large and raw-boned and overgrown, as he states it, and one sister died of hip disease at the age of sixteen or seventeen. The patient was in good health until about ten years ago when he worked in a basement in a wholesale house and did heavy lifting and while there was not well. His disease was regarded as malaria and he was treated for that; since that time he has been out of health. He was not aware until quite recently that he had any disease; his friends told him he had changed considerably in appearance, and he perceived himself that he had done so, but he was inclined to think he was favoring his raw-boned uncle, that it was an exaggerated family trait to grow this way as he grew older. He cannot fix on any particular time when this enlarge-

ment began, but as nearly as he can get at it the change began about the time his health failed while he was working in the basement of the wholesale house, about ten years ago. He thinks, too, that the enlargement as we see it now all took place within three or four years and that since then there has been no enlargement. He can do a good day's work now and only came to the hospital on account of a painful swelling in the right knee, which seemed to be rheumatic in nature; it has only lasted a few weeks, and he got it by sleeping in a barn, being a teamster and accustomed to the care of horses.

As you know, this condition has only been recognized as a disease for about eight years and nothing whatever is known regarding its etiology. It seems to be an enlargement of the bones and soft parts and is usually accompanied by weakness, and very often by polyuria and diabetes, but that does not obtain in this case, for his general health is good, he eats and sleeps well, has no diabetes and I think no eruption on the skin.

You will see that the features are considerably enlarged, there is not much elongation but the great toes of each foot measure five inches in circumference, and there are the characteristic sausage-shaped fingers. The lower jaw is enlarged and the soft parts are very much enlarged. In this part of the foot there is a great amount of enlargement. There is no soreness and there has been no pain at any time. The knee was quite sore but I think that was a rheumatic enlargement. There is a little glandular enlargement below the left ear which is due an operation performed when he was a child and is no part of the disease.

Dr. H. M. LYMAN: This makes the fourth case of acromegaly that I have seen. When one has once seen a case and got an idea of the character of its physiognomy it is almost impossible to make a mistake in the diagnosis. The pituitary bodies have been found enlarged in quite a number of these cases, but the same change has also been found in other disease, and its nonenlargement has been noted in acromegaly, so that it is probable that hypertrophy of that gland is only one of the general changes experienced at the base of the brain. The bony parts of the brain all become deformed and there is no reason why that portion lying within the cavity that is enlarged should not enlarge also, so it is merely a case of concomitant deformity. The disease is undoubtedly one of nutrition. There is quite a large and interesting group of diseases in which a discovery is going to be made some day, but not until our knowledge of chemistry is further advanced. When chemists

learn to interpret more and more accurately the processes that take place in the tissues of the body in normal nutrition, we shall learn to understand these cases of pathological nutrition, many of which are now so hard to explain. Osteomalacia, rachitis, and even some forms of rheumatism belong to this class of diseases.

Dr. W. F. WAUGH: I would ask if elastic compression has been applied to enlargements in these cases? I have had two cases of elephantiasis where I have used the elastic bandage with marked success, and I have wondered why it would not be of benefit in the treatment of this affection.

Dr. C. J. LEWIS read a paper entitled the

EFFERENT AND AFFERENT PSYCHICAL TERMS,

which was discussed by Drs. Brown and Lyman.

Dr. W. F. WAUGH read a paper on

SOME PECULIAR PSYCHICAL PHENOMENA CONNECTED WITH CHRONIC
INTESTINAL DISEASE.

Dr. H. M. LYMAN: I am reminded of cases of chronic irritation of the intestines where pseudo-membranes are thrown off from time to time, appearing in the feces very much like macerated mucous membrane, but which are really nothing but condensed masses of mucus. Such patients always suffer a great deal from mental depression; it is one of the most marked features of the disease, and they usually get relief by throwing off this mass by means of an evacuation of the bowels. Perhaps the doctor referred to some of these cases, in his paper. At least they were suggested to my mind by his remarks.

Dr. G. W. EMERY: Many times the conditions we find in the intestinal and abdominal regions have very serious effects upon the mental condition, and I think that is very clearly established by the doctor's experiments and his observations in the cases cited. The surprising and important factor is the changed condition of that portion of the intestinal tract as stated in conjunction with the mental phenomena, which would almost appear to be associated as cause and effect, and we hope others may be led to investigate the subject very carefully, with a view of verifying the observations made if correct.

Dr. SANGER BROWN: I hardly think that it ought to stand as accepted by this society that melancholia is due to a certain state of the bowels and can be cured by relieving these organs, but the proposition that in all cases of melancholia it is important to look

into the condition of the bowels very thoroughly should be recognized, and I think that was the main purpose of the paper; to insist upon the importance of attending to the bowels thoroughly according to improved methods rather than to advance the proposition that any considerable number of cases of melancholia or insanity could be cured in this way. From the latter proposition I would have to dissent.

Dr. EDWIN HAMILL: I have frequently noticed in cases of intestinal digestion that the patients complain of very low spirits and I have sometimes thought that putrefactive ptomaines might be the cause; I have observed that a brisk cathartic given at such times brightens their spirits and makes them better.

Dr. W. F. WAUGH, in closing the discussion, said: I am very far from wishing to be understood as saying that all cases of melancholia are dependent upon the condition of the bowels or can be cured by attention to them, I only say that in some cases that is true; and I pointed out especially the curious connection between suicidal melancholia and displacement of the colon. Of course a few cases do not prove anything, but they show the possibility of their being a connection.

Dr. Lyman brought up an interesting subject, that of mucous enteritis. I have observed a number of cases, and wherever we could get at them I have found a great deal of benefit from the use of nitrate of silver solution, and it has been the only agent that has given me real satisfaction. I recall one case in which Dr. Holmes kindly left a fistula by which I flushed the whole colon. In several other cases it seemed that only the lower portion of the colon was affected and I passed a long tube through the sigmoid flexure. I use a solution of nitrate of silver in a strength of from one-eighth to one grain to the ounce. I do not think any medicine given by the mouth, in these cases, had the slightest effect.

The applications for membership of Drs. Charles L. Webster, E. R. Le Count, Frank Montgomery and D. D. Bishop, were read and took the usual course.

The committee on the recommendations of retiring officers made a partial report and asked for an extension of time, which was granted. The subject was discussed by several members and it was suggested that abstracts of papers to be read before the Society should be furnished the President who should send them to gentlemen selected to open the discussion: That if possible arrangements be made to have the proceedings of the Society published in full in the *RECORDER* and a copy furnished to each mem-

ber; that a certain number of reprints be mailed to other societies.

Dr. Lewis moved that the present committee have added to their duties the reporting of any suggestions in regard to the particular matter of reform in the discussions of papers. Carried.

On motion, the society adjourned.

G. W. CLEVELAND, Secretary pro tem.

COOK COUNTY HOSPITAL CLINICAL SOCIETY.

Meeting May 17, 1894.

Minutes of last meeting, May 10, read and approved.

Dr. MCGREW made a report of the executive committee on the programme for the following three and one-half months.

Dr. OLESON moved that hereafter the meetings of the society should be held on the 5th and 20th days of the month, and when these dates fall on Sunday to hold the meeting on the following day.

Motion seconded and carried.

EXHIBITION OF CASES.

Dr. MCGREW exhibited two cases of scurvy. Both were Polanders and came from the drainage canal. In one there were subcutaneous hemorrhagic patches involving both legs; muscles appeared indurated and there was believed to be a hemorrhagic effusion into the right knee. There were also hemorrhages into the papilla of the hair. The other showed fever symptoms and was anomalous in the crepitation in the elbow joints on passive motion.

No petechia or ecchymosis were present in the latter case, the diagnosis being based upon the purpuric eruption, induration of the muscles and the history of having worked in the drainage canal.

Dr. WALKER exhibited a case of aneurism of the arch of the aorta, which had been in the ward about two months previous and had lately returned. No differences in the radial pulse of each side could be detected.

Dr. SKINNER reported having noted a marked difference two months ago. Double mitral and double aortic murmurs were heard as pointed out by Dr. McGrew. The treatment has been rest, ergotine and potassium iodide.

Dr. TINEN exhibited a case of multiple abscess in which numerous abscesses appeared subsequent to the opening of a single abscess. A peculiar bacillus with end spores was found in pus.

Dr. MCGREW exhibited a case of exophthalmic goitre which showed exophthalmas, large goitre, irregular rapid heart and nystagmus.

Dr. TINEN read a paper on smallpox in which he reported and showed photographs of eleven cases.

Meeting of June 5, 1894.

Dr. TINEN in the chair.

Minutes of last meeting, May 12, read and approved.

Dr. TINEN reported his attendance at the meeting of the health officers at Springfield. Our representative was made an honorary member of the society.

Dr. OLESON moved that a committee of three be appointed to consult with a similar committee of the Alumni Association of Cook County Hospital with reference to the formation of a society for literary purposes, the society to include only members of the Alumni Association of Cook County Hospital. Motion seconded and carried. Committee appointed E. H. Tinen, F. A. McGrew, L. Ryan.

EXHIBITION OF CASES.

Dr. OLESON exhibited a case of carcinoma of superior maxilla, in which the superior maxilla, a portion of the malar and orbital plate of the frontal bone were removed. Also exhibited a case of gonorrheal rheumatism.

Dr. WALKER exhibited a case of endocarditis, following a severe attack of acute articular rheumatism.

Dr. WALKER also exhibited a case of pulmonary tuberculosis, complicated by tubercular ulcers on the vocal cords.

Dr. WALKER also showed an interesting case of acromegalia in which the fibrocartilages of the ear and larynx were enlarged. The face was elongated and elliptical, due to the enlargement of the frontal and inferior maxillary bones. The nose was thickened, the temporal fossae greatly deepened on account of the enlarged malar bones. The frontal sinuses and superciliary ridges projected, making the forehead recede. The tongue was large and thick; the hands were very broad and thick, and the termi-

nal phalanges broad and flattened; abdomen prominent. Large toe five inches in circumference; feet broad and thick; muscles resilient.

Dr. RYAN exhibited a case of fibroma molluscum.

Dr. OCHSNER presented a case for diagnosis which showed enlarged cervical lymphatic glands and nystagmus. No other symptoms present.

A discussion of the cases by Drs. McGrew, Walker, and Tinen followed.

Dr. MCGREW read a paper giving a summary of the case in his obstetrical service.

Motion to adjourn.

Meeting June 20, 1894.

Meeting called to order by Dr. Tinen.

Minutes of previous meeting read and approved.

EXHIBITION OF CASES.

Dr. OCHSNER exhibited a case of rheumatism, the twentieth attack within the last two years. This case is of interest in presenting no valvular lesion. Also a case of acute articular rheumatism in a boy twelve years of age. There are present a marked systolic murmur, hydrocele and pericardial bulging, more marked to left of sternum.

Dr. WALKER exhibited a case in which a fracture of the humerus has remained ununited for several years, yet the patient has good use of his arm.

Dr. TINEN exhibited a case on which a plastic operation was performed. In a railway accident the vomer, and malar bones and fracture of the superior maxilla was caused. The operation consisted in replacing the nasal bones by a portion of the frontal bone, and taking a flap from the forehead to form a cutaneous covering for the nose. Primary union took place.

Discussion of cases followed.

Dr. OLESON reported a case in which suprapubic cystotomy had been performed, and a uric acid calculus removed.

Dr. MCGREW exhibited a heart in which there were vegetations on the mitral valve measuring $2\frac{1}{2}$ to 2.2 cm. in diameter.

Meeting adjourned.

Meeting, July 5, 1894.

Meeting called to order by Dr. Tinen. The following cases were exhibited:

Dr. WALKER presented a case with an abdominal tumor in a man, age thirty-eight. Past illnesses and family history negative. Present illness began last August. From that time to the present he has had diarrhea; this being soon followed by dragging pains in the left side. Emaciation progressed, the patient having been reduced in flesh from 187 to 150 pounds, and has become markedly anemic.

On examination the abdomen is seen to bulge in the left lumbar and left hypochondriac regions. On palpation a mass is felt which extends to about the median line, to a point a little below the level of the umbilicus and above to a point a little below the level of the lower border of the sternum. The surface smooth; outline regular; no pulsations detected; slight movement caused by deep inspiration, but not readily movable by manipulation; is not tender to touch; is dull on percussion and no fluctuation found. Blood negative on microscopic examination. Urine: patient gives history of having passed blood in the urine prior to the appearance of the tumor. At present time blood casts and diplococi found in the urine. Temperature normal; no edema except slight edema of abdominal walls. Lymphatics of axilla and groin slightly enlarged. Further examination of viscera negative. Diagnosis sarcoma of kidney.

CASE 2. Woman thirty-five years of age. Family history and past illnesses negative; first noticed a pain in her left side and left mammary gland. Breathing for the following two years became labored at intervals; during the past two years the dyspnea has been continuous. The epigastrium is seen to retract at each inspiration and entire body moves. Lungs and heart negative; sensation normal. No cause for this peculiar dyspnea can be found.

Dr. RYAN exhibited a case of stab wound of the stomach operated upon by Dr. McNamara, attending surgeon. The stab occurred immediately after the ingestion of a full meal, the stomach contents having protruded over the abdominal wall. Laparotomy was performed and the wound found in the great curvature of the stomach on the anterior wall. This was closed, the peritoneal cavity flushed and drained. Rapid recovery followed.

Discussion of cases by Drs. Belfield, La Count, Gehrman, Tinen and McGrew.

Dr. FINDLEY reported a case of erysipelas in a girl babe, age five months. Five days before entering the hospital the erysipelatous rash began in the genital tract and on admission was found to extend over the abdomen, back and thighs. Two days later it had spread over the entire body, back of neck and head and lower limbs to the ankles. Child nourished well; temperature varied from 101° to 103° at irregular intervals; no convulsions, quite sensitive to touch at any point on the body.

On the eighth day of the rash the child went suddenly into collapse and died. Post-mortem examination revealed a double pyosalpinx, general suppurative peritonitis, suppurative basilar meningitis, and on the mitral valves a few vegetations were seen.

Dr. SKINNER exhibited a specimen of anencephalous born at eighth month of gestation. Heart beat of child heard, but no respiration. Membrane and placenta normal. Mother a primipara. Previous history and family history negative.

Dr. LA COUNT presented two specimens of pigmented spleen. The first hematoiden crystals from a case of general milliary tuberculosis. The second hemosidrean crystals from a case of mitral insufficiency.

Meeting of July 20, 1894.

Meeting called to order by Dr. McGrew.

EXHIBITION OF CASES.

Dr. T. P. FINDLEY exhibited the following dermatological cases.

CASE 1. FAVUS. Boy, age eight years. The disease occurred on the scalp two years ago. Almost complete alopecia has resulted; the remaining hair being dry and crispy, and lusterless, and the scalp dry and cicatricial. On admission to the hospital a few yellow crusts were present. The scalp was thoroughly cleansed with scrub brush and green soap, and five per cent sulphur ointment applied once daily. Apparent removal of the infection ensued.

CASE 2. PSORIASIS. Boy, age six years. The patches of psoriasis were grouped chiefly upon the extensor surfaces of the knees and elbows. Many plaques seen scattered about the body and scalp. On removal of the white shining umbricated scales, a bleeding surface was left. This is the second recurrence of the eruption.

CASE 3. SUSPECTED CHANCRE OF TONGUE. At the time the patient was admitted to the hospital there was seen on the side of the tongue an oval, elevated body about the size of a split pea.

The surface was smooth, shining, red and glazed. The induration marked and circumscribed, and the body movable upon the subjacent parts. There was general adenitis; patient complained of headache, deep boring pains in the legs at night and a slightly sore throat. General adenitis was present. The patient was placed on a gargle of bichloride of mercury 1:2000. He says he smoked a pipe of a friend three days before the appearance of the sore on the tongue; denies all venereal infection. At the present time, five days after admission, numerous mucus plaques are seen on the palate and papillary elevations on the dorsum of the tongue. Faintly developed maculae are seen on the back. General symptoms about the same as on admission.

Dr. BISHOP thought it advisable to withhold treatment till the eruption becomes more pronounced, when a diagnosis can be more safely made. He thought it was syphilis but doubted the probability of the initial lesion occurring three days after the infection from the pipe.

Dr. BLACK also advised postponing treatment till the lesions became more clearly defined.

CASE 4. Presented for diagnosis. No history obtained from the patient, who was a Pole and could not speak English. On the arm, forearm, back and thigh there were several lesions about the size of a twenty-five cent piece. A few were semifluctuating yet rather firm; no redness nor infiltration present and were considerably elevated above the skin. Others gave evidence of having been similar to the above lesions but had become ulcerated and are now seen as large ragged ulcers secreting a bloody, purulent, fetid fluid.

Dr. BLACK thought a diagnosis could not be made till cultures had been taken for the purpose of first excluding glanders.

Dr. BISHOP remarked that some of the lesions were very like potassium iodide bulbous eruptions and thought the case might be one of syphilis and iodism.

CASE 5. KELOID. The boy, a negro, had been accustomed to carrying loads upon the left shoulder, at which point a keloid appeared two years ago. Last December another keloid appeared at the site of a vaccination.

Dr. MCGREW advised against operation because of the probability of the return of the keloid, and in view of the fact that the growth was causing the boy no inconvenience. He called attention to the fact that the boy had a predisposition to the growth as shown by the occurrence at the site of vaccination.

CASE 6. ECZEMA UNIVERSALA. Male, age twenty-five. Began two years ago from infection with poison ivy and now involves the entire body, face and extremities.

Dr. SKINNER exhibited a case showing satisfactory results in the treatment of a case injured in powder explosion.

Dr. MCGREW exhibited the following cases:

CASE 1. Male, age thirty-two, cooper by occupation, American, family history good. Personal history: A hard drinker and smoker for years; primary lesion three years ago, no secondary lesions. Has had gonorrhea and the ordinary diseases of childhood. Present illness: Five months ago patient suffered from dizziness and dullness with flashes of heat and cold. Continued to grow worse for a week when there appeared spasms of the left leg and arm lasting five minutes and followed by sleep. These spasms recurred three times. Had apparently recovered at the end of five weeks. About three weeks ago his left leg felt numb and contracted spasmodically and he became unable to walk without support. In left leg the patellar reflex was greatly increased; ankle clonus pronounced and spastic gate markedly developed. Right leg and general condition normal. Treatment consisted in the administration of potas. iodide. Rapid recovery followed.

CASE 2. Male, age fifty-one, occupation, coachman. Family history good.

Personal history: Has drank whiskey and beer for many years. Venereal history denied. Present illness began eight months ago when the legs began to swell and felt stiff. During the past five months he has had incontinence of urine, coughs, and has night sweats. Pupils unequal, left widely dilated; both react slowly to light and accommodation. Patellar reflexes exaggerated, occasionally spasmic contractions of the flexor muscles of the legs; gate very unsteady; cannot stand with eyes closed, and rises from chair by supporting his body with his hands on his thighs; upper extremities negative. Gangrene has developed in the sacral region; marked atrophy of muscles of lower extremities; no intention tremor; speech slow but not scanning; skin reflexes not marked.

CASE 3. SPLENO-MYELOGENOUS LEUKEMIA. Female age forty-three years. Family history: Father died of some acute disease at fifty years of age; mother died in confinement; brothers and sisters all living. Personal history: Has not menstruated for five months; was previously regular. Previous illnesses: Diseases of childhood. No venereal disease. Present illness: Has suffered at times with pain in the inguinal region

and sweating of the feet; otherwise feels well. Physical examination: Heart and lungs negative; liver, dullness slightly increased; bulging of the abdomen is seen in the left hypogastric and left lumbar region. Palpation shows a tumor the edge of which extends in a curved direction from the sternal end of the eleventh rib to the umbilicus occupying the left lumbar, left half of the umbilical region; is dull on percussion, tender, does not pulsate nor fluctuate; moves freely on deep inspiration.

Blood examination: Amount of hemoglobin fifty per cent; fresh specimen shows great increase in number of white corpuscles. Diminution in the absolute number of red corpuscles which vary in size; specimen stained with Birden Ehrlicks; triple stain show that the relative number of the various kinds of leucocytes remains about as usual, with great increase in the absolute number; one or two eosinophilous cells are found in each field and broken granular masses of eosinophilous cells are numerous; nucleated red corpuscles are occasionally seen.

Dr. WALKER: CASE OF ELEPHANTIASIS. Female. Age seventy. Never married. Family history: Parents, two brothers and two sisters dead; causes unknown. Past illnesses: Four years ago an epithelioma appeared in the right eye. One year later erysipelas developed in the right leg. Swelling of the right leg has persisted from the disappearance of the erysipelas and on admission was found to be about one and one-half larger than the left leg. The swelling extends to the calf of the leg and is covered with thick dry brittle crusts; no oozing caused by removal of the crusts. There is a slight pitting on pressure where the crusts are absent. The foot has a flat mouldy plantar surface.

Dr. WALKER called attention to the interesting fact that the epithelioma appeared previous to the erysipelas.

Adjourned.

T. P. FINDLEY	}	Secretaries.
E. H. OCHSNER		

Reviews.

A TEXT-BOOK OF THE DISEASES OF WOMEN. By HENRY J. GARRIGUES, A. M., M. D. With 310 illustrations. Cloth, 690 pages. \$4.00. Philadelphia: W. B. Saunders, 1894.

Still another text-book on diseases of women. Dr. Garrigues has given the profession an excellent, practical work on the subject. His experience has been vast, but unlike other authors, he has not expatiated on what he has done. His book is for the general practitioner, and gives full details in every department of the subject. Diagnosis is treated with especial and painstaking care. Anatomy is given more in detail than is usual in works on this subject. There is little of vain repetition. The author, in the consideration of treatment, is conservative; he deals with medical and electrical treatment first, leaving surgical procedures as a last resort. 244 pages are devoted to what the author calls the "General Division," which includes anatomy, physiology, etiology and treatment in general, disorders of menstruation and leucorrhea. To the special division 404 pages are given. In this division are included diseases of the vulva, perineum, vagina, uterus, Fallopian tubes, ovaries and pelvis. In the appendix sterility is discussed. The book is well printed and bound, the illustrations are excellent as a rule, the indexing is beyond reproach, and the work as a whole fulfills the promise of the author; that is, it is "a full but concise exposition up to date, of the nature and treatment of the diseases peculiar to women."

AN ILLUSTRATED DICTIONARY OF MEDICINE, BIOLOGY AND ALLIED SCIENCES. Including the pronunciation, accentuation, derivation and definition of terms. By GEORGE M. GOULD, A. M., M. D. Philadelphia: P. Blakiston, Son & Co., 1894. Royal octavo, 1640 pages.

The dictionaries edited by Dr. Gould have taken front rank almost at a bound, and this is the crowning one of the series. Regarding the forms of derivative words Dr. Gould's position has long been understood to be in the direction of simplification. Diphthongs are completely eliminated, and pronunciation is made to conform to the English standard. In this matter the book is consistent throughout. Each word has the indicated pronuncia-

tion in parenthesis, and the definitions are peculiarly clear and comprehensive. The introduction of tables under appropriate headings adds greatly to the practical value of the work. The print, make-up and illustrations, which are matters of such prime importance in a lexicon, are beyond criticism, and the typography is an honor to the publisher. That all modern terminology is represented can be safely stated. Without doubt this volume outranks all of the numerous dictionaries of medicine which have appeared during the past five years.

DISEASES OF THE NOSE AND THROAT. By F. D. HAVILLAND HALL, M. D., F. R. C. P., London. With two colored plates and fifty-nine illustrations. Philadelphia: P. Blakiston, Son & Co., 1894. Duodecimo, 524 pages. Cloth, \$3.

The author apologizes for the appearance of his work on the ground that he knows of none of moderate size which gives anything like a complete account of these diseases. He has very well accomplished the task of describing not only the diseases, but the various plans of treatment in this special line within the compass of this very handy and neat little volume. The conservatism shown throughout and the clearness of style, will commend it to all. Some ten pages of formulæ in an appendix will no doubt receive frequent reference. The numerous references throughout the book to the literature of the subject, which are, however, confined to footnotes and do not burden the text, add strength to the position of the author.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONERS' INDEX. A Work of Reference for Medical Practitioners. 1894. Twelfth year. Cloth, 704 pages, \$2.75. New York: E. B. Treat.

The twelfth edition of this annual is an improvement on an already excellent work. It is larger than its predecessors, contains more illustrations and covers a wider range. Dr. Hare's review of the newer remedies is concise and interesting. Dr. Shaw has contributed an excellent and well-illustrated article on facial expressions in insanity. One of the most valuable and practical chapters in the book is that on eczema by Unna. The book has suffered little on account of its poly-editorship. There is a preservation of unities which is rarely seen in books for which many authors are responsible. As a whole the book is broad, and free from partiality and prejudice. It is well bound, but is not well printed on

a poor quality of paper. This fault should be remedied in later issues.

CHRONIC JOINT DISEASE. Some preliminary papers. By JOHN RIDLON, M. D. and ROBERT JONES F. R. C. S. E. Octavo, 180 pages.

The profession has been promised for some years a work on orthopedics by these distinguished writers and their patience is in some measure rewarded by the papers published in this manner, but the completed work will still be anticipated with great interest. It is stated that the book was prepared to meet the wants of the students in the Northwestern University Medical School, but it has a range far beyond this scope, enabling the physician at the bedside, almost with the implements to be found in every household to construct apparatus for nearly all the important conditions discussed, and its practical value is therefore unequaled. A wealth of illustration and of clinical material mark the pages.

CLINICAL DIAGNOSIS. By ALBERT ABRAMS, M. D. Third edition, revised and enlarged. Illustrated. Cloth, 273 pages, \$2.75. New York: E. B. Treat. 1894.

This is a compilation of the ideas of others, and it is difficult to see why it should have passed to a third edition. It contains a certain amount of matter valuable to the practitioner, but presented in other works in a more convenient form. Mechanically the book is a disgrace to its publisher. It is badly printed in places almost illegible, the paper is cheap and coarse, the illustrations not up to the standard of to-day. The binding is well done.

A MANUAL OF THERAPEUTICS. By A. A. STEVENS, A. M., M. D. Cloth, 435 pages, \$2.25. Philadelphia: W. B. Saunders. 1894.

It is marvelous how much Dr. Stevens has succeeded in compressing into this little book. It is a book, far superior to its class, which will prove useful to students, and which many practitioners could study with profit. Especial attention is paid to differential diagnosis and to applied therapeutics. The work is well arranged, elaborately indexed, neatly printed, and entirely up to date.

WHERE TO SEND PATIENTS ABROAD FOR WATER CURES AND CLIMATIC TREATMENT. By DR. THOMAS LINN. Physicians' Leisure Library. George S. Davis, Detroit, Mich. Price, 25 cents.

Much information of a practical and clinically valuable sort may be found in this little book.

ESSENTIALS OF DISEASES OF EYE, NOSE, AND THROAT. By EDWARD JACKSON, A. M., M. D., and E. B. GLEASON, S. B., M. D. Second edition, revised, 124 illustrations. 290 pages. Cloth, \$1.00.

ESSENTIALS OF PRACTICE OF PHARMACY. By LUCIUS E. SAYRE, Ph. G. Second edition. 200 pages. Cloth, \$1.00.

ESSENTIALS OF MEDICAL PHYSICS. By FRED J. BROCKWAY, M. D. Second edition. 330 pages. Cloth, \$1.00.

ESSENTIALS OF ANATOMY. By CHARLES B. NAUERECK, M. D. Fifth edition. 388 pages. Cloth, \$1.00.

SAUNDER'S QUESTION COMPENDS. Numbers 18, 22, 3, and 14. Philadelphia: W. B. Saunders. 1894.

All good of their class, a class the necessity for which in this country is to be deprecated, as students too often depend on the compend and neglect the text-book. These editions are revised, brought up to date, the three latter are well illustrated, and the compend of anatomy has an appendix on osteology.

News Items.

DR. H. B. CARIEL has removed to 4203 Greenwood Avenue.

DR. NORA SOULE DAVENPORT has removed to 446 Congress Street.

DR. JOHN E. OWENS and family have gone to Europe for a few months.

DR. J. L. DAVISON, editor of the *Canada Lancet*, has gone to Europe.

DR. E. J. DOERING has gone to Europe with his family and will return November 1.

THE NATIONAL ASSOCIATION OF RAILWAY SURGEONS now has a membership of 1,767.

TERATOLOGIA, a quarterly devoted to antenatal pathology, has appeared in Edinburgh.

THE AMERICAN ACADEMY OF MEDICINE will meet at Jefferson, N. H., August 29 and 30.

DR. CONRAD LANGE, formerly of New York, is reported to have died in Berlin, June 28.

DR. FRANK BILLINGS and family are spending the summer at Bridgehampton, Long Island.

DR. H. E. PEARSE has succeeded Dr. Lanphear as editor of the *Kansas City Medical Index*.

TO RENT. Hours 9-1 with Dr. Quine and others, suite 907 Columbus Memorial Building.

DR. JOHN S. BILLINGS has been appointed Deputy Surgeon General of the United States Army.

PROF. STELLWAG VON CARION, the eminent oculist of Vienna, has resigned, owing to advanced age.

THE NEW YORK MEDICAL JOURNAL has moved into its new quarters at 72 Fifth Avenue, corner 13th Street.

THE IDAHO STATE MEDICAL SOCIETY will hold its second annual meeting at Boise, September 10, 11 and 12.

DR. JOHN A. ROBISON has given up his downtown office, continuing the hours at his residence, 297 Ashland Bvd.

DR. V. P. GIBNEY has been made Professor of Clinical Surgery in the New York College of Physicians and Surgeons.

PROFESSOR HERMANN HELMHOLTZ was taken suddenly ill on July 12, with a brain lesion and now has left-sided hemiplegia.

DR. ROBERT B. PREBLE has returned to Chicago and now has his residence and office at North Clark Street and Demming Court.

THE AMERICAN PUBLIC HEALTH ASSOCIATION will hold its twenty-second annual meeting at Montreal, September 25, 26, 27 and 28.

A ROYAL ACCOUCHEUR. Dr. John Williams, of London, who attended the Duchess of York in confinement, has been made a baronet.

THE FRENCH CABINET now has two medical members, Dr. Viger, Minister of Agriculture, and Dr. Lourties, Minister of Commerce.

EUROPEAN PRACTITIONERS according to the latest obtainable statistics number in Great Britain 31,772, in Austria 8,097, and in Italy 19,120.

THE NEW YORK WOMAN'S MEDICAL COLLEGE held its twenty-sixth annual commencement on June 1, with a graduating class of seventeen.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will hold its forty-third annual meeting at Brooklyn, N. Y., from August 15 to 24.

THE RAILWAY SURGEON is the successor of the surgical department of the *Railway Age*. It is a neat fortnightly, well arranged, edited and printed.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION will hold its fourth annual meeting at the New York Academy of Medicine, September 25, 26 and 27.

WANTED. No. 2, Vol. V, August 1893, of the CHICAGO MEDICAL RECORDER, for which a liberal price will be paid upon its receipt at the office of the RECORDER.

THE OHIO STATE BOARD OF HEALTH has elected Dr. Byron Stanton, of Cincinnati, President, Dr. S. P. Wise, of Millersburgh, Vice President, and Dr. C. O. Probst, Secretary.

DR. GEO. F. BUTLER, formerly connected with Rush, has been elected to the chair of Materia Medica and Clinical Medicine in the College of Physicians and Surgeons, Chicago.

THE AMERICAN MEDICAL ASSOCIATION has 3,921 members. Pennsylvania heads the list of States with 462; Illinois is a good second with 440, while Wyoming has but one member.

WEST BADEN MINERAL WATER can now be obtained from the Chicago office, Room 210, 269 Dearborn Street. This is probably the best sulphur water available to the Chicago market.

FOR RENT. In Columbus Memorial Building; hours, all or a part, from 9 A. M. to 2 P. M., in a small furnished suite, to physician. Telephone and attendant. Apply 1303 Columbus Building.

THE BERLIN OBSTETRICAL AND GYNECOLOGICAL SOCIETY has elected as honorary members Drs. T. Gaillard Thomas and Thomas Addis Emmet, of New York, and Dr. Theophilus Parvin, of Philadelphia.

TO RENT. Hours from one to three in a desirable office in the Columbus Memorial Building. Only three other physicians in suite. Office girl and telephone. Apply Room 1201 Columbus Memorial Building.

THE NEW YORK JOURNAL OF GYNECOLOGY AND OBSTETRICS announces that in August it will change its name. It has grown to be more than a local journal, and requires such a change on account of its broadened sphere.

DR. JAMES MOORE BALL, editor of the *Tri-State Medical Journal*, is about to move from Keokuk to St. Louis, where he has been made Professor of Ophthalmology and Otology in the newly reorganized College of Physicians and Surgeons.

FRENCH LICK SPRINGS, in Orange County, Indiana, will probably be opened as a first-class hydrotherapeutic establishment and resort, as H. V. Bemis, of Chicago, has an option upon the property and is trying to organize a stock company for the purpose named.

GUSSENBAUER, of Prague, has been placed in charge of the second surgical clinic of the University of Vienna. Czerny, of Heidelberg, after having agreed to accept the succession to Billroth, subsequently declined the appointment through an unfortunate misunderstanding.

THE AMERICAN JOURNAL OF INSANITY has been sold and transferred to the American Medico Psychological Association, of which society it will henceforth be the accredited organ. The journal will be edited ad interim by a publication committee with Dr. Richard Dewey, in immediate editorial charge. The office of publication has been transferred to Chicago.

JOSEPH HYRTL, the distinguished anatomist, died at Vienna, on July 17, at the age of eighty-three years. He was Professor of Anatomy in the University of Prague from 1837 to 1845, when he was elected to a similar chair in the University of Vienna. He was the author of a "Manual of Physiological and Practical Anatomy" and a "Manual of Topographical Anatomy and its Applications."

THE NEW YORK SCHOOL OF CLINICAL MEDICINE is the name of a new institution for clinical instruction which has just been incorporated by the trustees of the West Side German Dispensary. Among the corps of instructors will be the following members of the Dispensary Staff: Dr. A. H. Goelet, gynecology; Dr. J. Mount Bleyer, laryngology and rhinology; Dr. Richard Kalish and James A. Meek, ophthalmology and otology.

LOUISVILLE, Kentucky, taxes every medical man practicing within its boundaries \$10 a year, while the town of Charlotte, North Carolina, extracts \$15 annually from the pockets of its doctors. In this way the former city obtains a revenue of \$3,400 and the latter one of \$405, and yet no doubt in each case the medical profession is expected to do the usual amount of work for which the satisfied sense of virtue is the sole reward.

THE KANSAS CITY MEDICAL COLLEGE announces the following changes in its faculty: Dr. Case succeeds Dr. Sharp as Secretary; Dr. J. D. Griffiths becomes Dean in place of Dr. Porter, resigned; Dr. Rathbone takes the chair of Therapeutics and Clinical Medicine; Dr. Mosher is made Professor of Obstetrics; Dr. Pearse is advanced to the chair of Anatomy; Dr. Fulton becomes Professor of Operative and Clinical Surgery and Dr. Beattie obtains the Lectureship on Diseases of Women.

SIR JOSEPH LISTER. The Council of the Society of Arts has, with the approval and sanction of the President, His Royal Highness the Prince of Wales, awarded the Albert Medal to Sir Joseph Lister "for the discovery and establishment of the antiseptic method of treating wounds and injuries, by which not only has the

art of surgery been greatly promoted and human life saved in all parts of the world, but extensive industries have been created for the supply of materials for carrying the treatment into effect."

THE CHICAGO HEALTH DEPARTMENT has undertaken the bacteriological diagnosis of diphtheria for the profession, and has prepared instructions to go with boxes, containing culture tubes, which may be obtained by a physician, or upon his order, from the Department Clerk, Room 4 City Hall. The bacillus of diphtheria will grow within twenty-four hours and in that length of time a report may be had by the physician as to the exact nature of the throat complication. We feel sure the profession will be grateful for the organization of this department. As an aid not only to the diagnosis but to the prevention of the disease its value cannot be easily estimated.

THE GOVERNORS OF NEW YORK AND ILLINOIS. Governor Flower wisely respited Mrs. Halliday, the Monticello woman recently convicted of murder in the first degree and sentenced by the judge to death in the electric chair. The commission of experts appointed to examine into her sanity reported that she was of unsound mind. In view of the evidence, even on the trial, there was no other conclusion to be drawn. The sentence was accordingly changed to imprisonment for life as an insane convict. The Governor is to be congratulated on his fairness and good sense. The Governor of Illinois might have done the same for Prendergast and with equal propriety, but it is now too late, as it is with other things he left undone.—*Med. Record.*

TO THE EDITOR: I notice that in the printed report of the discussion which followed Dr. Gradle's article, "A Clinical Study of the So Called Reflex Neuroses," the remarks I made in reply to Dr. Colburne are omitted. I regret this because they were intended to throw light upon a point which was apparently misunderstood at that meeting. I made a distinction between graduated and partial tenotomy. Under graduated tenotomy I understand a complete division of the tendon, just at its insertion, from the eyeball. Partial tenotomy I have interpreted as buttonholing the tendon; the operation of Stevens. Whether others will uphold these definitions or not is immaterial as far as they have a bearing on my remarks; they are essential, however, to elucidate the views I gave expression to.

BOERNE BETTMAN.

THE CHICAGO MEDICAL RECORDER

SEPTEMBER, 1894.

Original Articles.

SPASMODIC LAUGHTER AND WEEPING.

A LECTURE DELIVERED AT THE SALTPETRIERE BY PROFESSOR
EDOUARD BRISSAUD.

TRANSLATED FROM THE REVUE SCIENTIFIQUE FOR THE CHICAGO MEDICAL RECORDER,
WITH THE PERMISSION OF THE AUTHOR,

By HUGH T. PATRICK, M. D., CHICAGO.

GENTLEMEN :—I am going to study with you to-day spasmodic laughter and weeping, particularly the varieties which are observed in hemiplegia of cerebral origin. Those of you who follow this service had the opportunity of seeing a few days ago an old lady, a hemiplegic, transferred to the hospital wards for some slight indisposition, gastric trouble, I believe. This woman had been admitted to the infirmary for a paralysis of the right side, preventing her from earning her living. Here she had been very well until this last attack, moving about with tolerable facility despite her infirmity. When she entered the hospital ward we noticed an exaggeration of her contractures, which ordinarily were not very pronounced, and as soon as we began to question her she began to weep most copiously and was shaken with sobs. She was seemingly plunged in the deepest despair and this without apparent provocation. The moment she was addressed with tenderness, or was even looked at she burst into tears. At present, she seems consoled ; at least she does not weep any more, and has returned to the infirmary in her former condition, except that she retains from this transitory ailment a propensity to laugh without adequate cause. Her hemiplegia persists but is not more pronounced than before. Episodes of this nature are of common

occurrence in the history of hemiplegics and they are observed at the Saltpêtrière especially in winter, in the course of any indifferent illness or indisposition. We see all at once an exaggeration of the reflexes, the paralysis increases with a tendency to contracture and sometimes a singular laughing and crying is added which is nothing but an exaggeration of the spasmodic condition.

This laughing and crying although not constant in hemiplegia is very frequent and this spasmodic condition, which is evidenced by an increase of sensitiveness and of reflex phenomena nearly related to it, is encountered also in other diseases. We have here the necessary and sufficient elements for an attempt at central localization whatever may be the cerebro-spinal affection with which we have to deal.

It is of this question that I have decided to talk to you and my wish to do so is increased by the fact that I have recently seen the report by Bechterew of a case of uncontrollable laughter.¹ I had already studied this subject with some care and had presented my results to the Congress of Limoges. I do not enter into the question of priority and would not have mentioned these details had I not seen that work earlier than mine had been published by Bechterew in Virchow's Archives.² Far from claiming priority for my communication I am happy to concede it to Prof. Bechterew and regret that I did not know of his interesting paper at the time of the Congress of Limoges. I would add that my conclusions while differing slightly from those of the professor of Kasan, agree with them in the main and I am glad to be in accord with him on this point. The case of Bechterew is as follows: A young man affected with cerebral hemiplegia of the left side, of syphilitic origin, was heavy and somnolent. He had a marked tendency to weep and looking at him sufficed to cause a burst of tears. Besides he was taken with spells of unconquerable laughter, veritable spasms occurring several times during the day. They did not seem to be an ordinary reflex action; tickling, for instance, did not provoke them, and they always occurred from psychic influence; a spontaneous influence, autochthonous as Bechterew calls it, often so fugitive that the patient could not remember the cause of his laughter and found it out of place. The attacks lasted half an hour, an hour, two hours, with but short intermissions. Specific treatment was employed, the hemiplegia improved and at the same time the attacks of spasmodic laughter disappeared. The conclusions drawn from this observation, the autopsy is wanting, are that the location of the lesion corresponded to the centers for expres-

sion in the anterior part of the thalamus. Here in fact we find the system of nuclei where converge on the one hand the fibers which transmit cortical stimulation and on the other those which conduct reflex excitation. Is the cerebral lesion the direct cause of the tendency to irresistible laughter or is it the indirect cause by preventing the action of the inhibitory centers? Prof. Bechterew adopts this latter hypothesis because to provoke the laughter a psychic influence was necessary, however trivial.

But whatever our conclusions may be, for the moment we will simply bear in mind the fact of this uncontrollable laughter, and the fact is not rare. We see in hemiplegics sometimes spasmodic laughter, sometimes weeping, occurring in spells, occasioned by the awakening of an image stored away probably in the frontal lobes. The phenomenon is familiar; it is known that these patients are the subjects of a peculiar sensibility, but it has not been specially studied as an entity and with regard to the interesting question of localization.

We know nothing of the mental state of our fellow creatures except by means of the expressions which they furnish us. Left by ourselves would we even have emotions? The question is still sub judice and the judges will ever be divided. But it seems that these manifestations of the two extremes, sadness and joy, are to be the point of departure for this physiological research. If from the analysis of certain simple facts we can draw some conclusions as to the variations of the emotional function, perhaps we shall succeed in finding one of the unknown quantities in the great problem of the psychic life.

To return to our patients; I must at once guard you against one source of error. The hemiplegics in question do not belong to those cases of senile dementia in whom small foci of softening occur day by day, and in whom the intelligence decreases *pari passu*. They do not represent that type of "whimpering senility" of which Diderot stood in such horror. Our patients possess all their faculties although at first view deprived of them. If we question them closely we see that the memory, the association of ideas, in a word the understanding is intact or very nearly so. Senile dementia, a misnomer since it may occur at all ages from organic cerebral disease, has also its silly laugh and inexhaustible tears, so well described by M. Magnan, but that is not the object of our consideration at present.

We shall see that many hemiplegics suffer cruelly from this disposition to excessive laughing and weeping and that they recog-

nize how ridiculous are these tempestuous manifestations. A mild pleasantry quite incongruous with such bursts of gaiety, induces an explosion of mirth which it seems will never end. Some of these subjects in spite of their interest in intellectual pursuits cannot, for example, go to the theater for fear of rendering their vicinity insupportable by their boisterous laughter and tears.

A hemiplegic in the full possession of his faculties recently confided to me how painful for him was this hyper-sensitiveness, and related the following: A lady mentioned to him that her little dog had just died. "Indeed," said he, "Oh, that is too bad." Was it this expression of condolence which by a sort of suggestion awakened a train of sad ideas? At any rate all the machinery of expression was set in motion; the simple sadness of the face induced tears, the tears, sobs, and worse still, this unfortunate man was no longer master of his sphincters. I could cite many analogous cases in which laughter took the place of tears.

Thus in a general way the laughter or the weeping in these cases is indeed the manifestation of an emotion, sad or gay, but more demonstrative than it should be. It is a voluntary expression but excessive, as manifested by the spasmodic phenomena.

Before studying these morbid manifestations I wish to say a word about the corresponding physiological processes: But we must acknowledge that the ultimate mechanism of laughing and crying is but poorly understood. Laughter, especially, cannot be experimentally studied "for laughter is peculiar to man." Weeping is also said to be one of our exclusive peculiarities. The assertion may be contested for if there are no animals that laugh, there are some that weep, and under such conditions that they would seem to thus express an emotion. A whole class of mammals, particularly ruminants secrete tears in abundance.

In man laughter and weeping are accompanied respectively by a special facial expression. But have not animals an analogous faculty? Some anthropoids have most significant facial expressions, not only the grimace which amuses us, but true expressive movements which merit closer study, much more so indeed than the problematical language of these animals.

But to return to the laughter and weeping of man. They enter into the category of muscular, that is motor, manifestations which are the necessary consequence of every emotion. This does not pass beyond the limits of simple physiology and pathology. There is nothing rash in saying, as I have just done, that a "movement of the soul" cannot be represented except by a muscular

action or its equivalent, secretion for instance, and is necessarily thus represented. Gratiolet³ in a work, already old, on physiognomy and the movements of expression affirmed that every emotion manifested itself by an act.

I will give you a fresh example of this truth. A medical student whom I know intimately and who for the past six years has been affected with a syphilitic hemiplegia tells me that he has given up reading novels; the misfortunes of the heroine produce a torrent of tears and he is in a transport of joy over the happy passages. However, he does not read aloud but only with the eyes and it is simply the emotion which he feels that brings into play his muscular apparatus. In his case it is a spasm which occurs instead of the imperceptible vibration which we all feel. Thus, as Féré has demonstrated, in pleasure and pain, joy and sadness, there is a "necessity of reaction."⁴ In subjects in a condition of spasm the least contraction tends to become general. You know besides, as the experiments of Charcot and P. Richer have shown, that a contraction provoked in certain muscles of the face may induce a whole series of appropriate attitudes; and this brings us to our subject, for the acts of laughing and weeping have a primary facial localization and then tend to become general. It would seem that in describing laughter one might repeat the lecture of that master of philosophy, M. Jourdain; you will see that in construing these vulgar facts we may find information of the greatest interest.

The first facial manifestation, at the labial commissure, consists in a slight contraction of a tegumentary muscle, the zygomaticus. The debut is always here, that is, in the region supplied by the filaments of the inferior facial; at first only a smile confined to the "corners of the mouth," then spreading, gaining the throat region and the phenomenon, at first limited to the face, attains the upper glottis and then the lower which dilates for the passage of the air expelled by the diaphragm. When this latter muscle comes into play it is evident that the excitation, starting from the nucleus of the facial has reached that of the phrenic nerve passing by way of the nuclei of the pneumogastric and spinal accessory. This is the moment of the full hearty laugh. Finally are produced manifestations still more boisterous and generalized. The motor column of the cord itself is attacked and the entire body participates in the spasm. We "hold the sides" and are "doubled up." This is the Homeric laugh of the Olympic gods at the sight of halting Vulcan trying to fill the place of Ganymede.

If now we pass in review the phenomena characteristic of weeping we shall see them succeed each other in an order quite analogous. This time the debut is a depression of the mouth by the chin muscles, the depressor labii inferioris and triagularis menti which by their contraction produce in the sub-buccal region the significant undulations which, especially in children, precede the torrent of tears. The excitation is propagated to the muscles of the glottis, the diaphragm and finally the sobs burst shaking convulsively the entire body the same as the laugh.

I have reserved the tears themselves for the last. But the flux of tears also depends upon the motor nerve. It occurs with a suddenness and abundance that can be occasioned only by a vaso-secretory nerve, such as is the chorda tympani for the salivary function. The lachrymal secretion occurs under conditions exactly analogous to those of the salivary secretion in the memorable experiments of Claude Bernard and Vulpian. We know that the chorda tympani corresponds closely to a motor nerve in origin, relations, distribution and function. It is a filament of the facial as is the branch of the ophthalmic which supplies the great lachrymal gland. Likewise blushing is essentially a phenomenon of vasodilatations and not the result of passive congestion such as is seen in the beginning of asphyxia. Thus all these effects depend upon the same gray motor column. Let us attempt then to locate the centers which preside over their production. I present to you a section representing the optic thalamus with the posterior segment of the internal capsule; below, the posterior commissure and the tubercula quadrigemina in the middle, the aqueduct of Sylvius surrounded by its gray matter. I spoke to you in my last lecture of the nuclei of the motor oculi communis distributed one above the other in this region; they form part of the same gray column that we find lower down, constituting first the origin of the facial, then that of the pneumogastric, the glosso-pharyngeal and further down the spinal accessory; farther still the origin of the phrenic which we shall see comes into play to shake the thorax in violent laughter or sobbing. With these few anatomical facts we may at once examine the process of laughing from the simple smile, a slight facial contraction, to the burst of laughter which convulses like a clonic spasm, a process always following the same track, always descending for the short diagonal of the rhomboidal floor of the fourth ventricle down to the gray matter of the cervical cord. And the stimulus of these bulbo-spinal nuclei is not arrested here since we may have a generalized spasm, a veritable

convulsion, the "crazy laugh" the "epileptic laugh." Finally I would add that the action of the gray motor column brought into play in laughter and weeping always begins at the level of the nucleus of the fifth pair, never higher. Above this the motor column corresponds to the intrinsic and extrinsic eye muscles and saving in exceptional cases the gray nuclei of the aqueduct do not participate in the action of the ganglionic masses in the expression of emotion. Nor does the nucleus of the patheticus take any part in this excitation. The fourth pair is misnamed for it has never added one whit to the pathos of any face.

Before inquiring as to the communications which serve to connect the cortical centers with the bulbar nuclei, let us endeavor to see the relation of these nuclei to expression itself. Investigators have sought for a long time to determine the location of the decussation of the motor tracts coming to these nuclei of expression. As the movements of facial expression are bilateral, at least in frank laughing and weeping, we must admit that the decussation, complete or incomplete, is perfectly symmetrical. The anatomical details are but little known and are still being studied, but recent experiments by Muratow have shown that the decussation of the motor tract for the face, superior and inferior, excluding the eye muscles, takes place just below the corpora quadrigemina, that is, just below the region which is never interested in these reflex phenomena of laughter and weeping.

It remains for us to inquire if the facial has different branches for laughter and for tears. No; in all probability the same nerve fibers and the same nuclei serve for these two opposite expressions, but, varying with the case, they create different motor combinations. We may say in a general way that the expression of laughter is due rather to the action of the levators and weeping to that of the depressors. And if we consider the muscular actions of laughing and of weeping as a whole we might make a somewhat similar statement of the other muscles engaged, the nuclei of the pneumogastric and spinal accessory supply muscles of inspiration and expiration. It is the first which are employed in the act of sobbing, and the second in laughing; for whether it be bursts of laughter, or a passion of weeping, it is the respiratory muscles which are in action. In short, although the nuclei of the motor column always stimulate their corresponding muscles our emotions are not expressed by means of such and such a nucleus taken as a whole. It would seem that they choose certain cells of each group. But if we are moved by more complex emotions, several

of these groups of cells may be discharged together, and if an emotion is extremely intense the neighboring groups cannot remain intact and the muscles of the face which serve for a frank laugh or cry combine their action so as to produce a complex result; we "laugh till we cry," we "weep for joy." Let me add that as great emotional agitation, so also do certain pathological conditions give rise to a double expression of sadness and joy. Thus the bulbar phenomenon is not always simple; the activity of the nuclei is not always uniformly localized. The reason lies in the fact that the medulla oblongata does not act as a purely reflex center but obeys commands from above, from the cerebral cortex. A direct bulbar stimulus has no effect but a reflex contraction without any manifestation of expression, as experiments have decisively shown. These orders which produce psycho reflex acts are transmitted, without doubt, by the optic thalamus. The connections of the thalamus with the bulbar nuclei are so arranged that for every expression, simple or complex, there exists a center of command. From this center are sent out the impulses to the bulbar nuclei, these impulses being discharged by a psychic stimulus.

Suppose for a moment a lesion exclusively irritative and confined to the medulla. You would see nothing but a spasm, a grimace resembling at once the act of laughing and of crying. All these groups of cells would act at the same time because the thalamus does not intervene to make a choice. Do we find such phenomena in neuropathology? Without a doubt, and I have already shown you the fact on another occasion apropos of a case of amyotrophic lateral sclerosis. You remember the characteristic meaningless laugh and weeping of Charcot's disease. It is due to the irritation of all the bulbar nuclei for facial expression. It is neither frank laughter nor tears, but a mixture of both.

While the complex phenomena of laughter and weeping are the consequence of an action of the cerebral cortex, we must not conclude that they are always of exclusively cortical origin. Laughter and weeping are often of a purely reflex nature; that is to say that they occur under circumstances in which the cerebral hemispheres are entirely neutral. Tickling, for instance, provokes the most frank laugh, a laugh nevertheless over which the cerebrum exercises no control whatever. There are still other kinds of activity of this system of bulbar nuclei which are, like laughter and weeping, sometimes psychic in nature, sometimes reflex. Yawning is one of these acts, with an established mechanism in which participate the muscles supplied by the seventh, tenth,

eleventh and twelfth cranial nerves, and a whole series of cervical nerves. Sometimes it is reflex, sometimes psychic; one yawns from ennui, and one yawns from want of sleep. Spasmodic yawning is also observed sufficiently often in hemiplegia. Nor is it simply a symptom added to the ordinary spasmodic phenomena of epilepsy, (Féré),⁵ or hysteria, (Charcot,⁶ Gille de la Tourette, Guinon et Huet).⁷ It seems indeed to depend upon an organic lesion but I will not insist upon this point for the present. I confine myself to the mention of it as a symptom; as a complex systematic act, the frequency and intensity of which are exaggerated as are the laughter and weeping of hemiplegia mentioned in the beginning of the lecture, and which may be produced by a mechanism purely reflex or psycho-reflex.

To return to the laughter. It is about demonstrated that its center of coördination is in the thalamus. It is here, too, that the stimulus of tickling is reflected; but the laugh thus provoked has no relation to the pathological laugh we are studying.

I present you here a patient whom you have already seen. She is a hemiplegic, but her hemiplegia is not of cortical origin; it is due to a lesion of the basal ganglia which has produced the facies called "pseudo-bulbar." You observe that her hemiplegia is left-sided, and her gait decidedly spastic. Question her, and she replies with the greatest difficulty, moving the tongue with effort and drooling saliva. This pseudo-bulbar paralysis is the result of a lesion which has cut, above the motor decussation, the fibers which pass from one hemisphere to the other to produce the bilateral movements of the face. The result has been a bilateral facial palsy. This paralysis, however, is not complete; the patient can articulate, but it is exceedingly difficult to understand her. You know enough of the history for us to study together this peculiar group of bulbar symptoms that she presents in such a marked degree. The neighbors of this woman in the ward are hysterical cases who, by the way, are far from being as sensible as she is. The other day, during our visit, one of them presented a typical picture of hysterical delirium. She assumed the most fantastic attitudes, with gestures pompous and comical; she made solemn salutations and bowed as if at mass with imperturbable solemnity. Our patient, although habituated to such scenes, could not help laughing, and having begun, you remember what followed. The explosion of her apparent gaiety filled the ward with ringing laughter, and she became, in spite of her efforts, much noiser than the hysterical subject.

This variety of laughter is absolutely identical with that of the patient whom I just presented; the hemiplegia which is the cause of this hilarity is so by reason of a lesion of the basal ganglia; the connection of the thalamus with the cortex is respected. The result of the cortical stimulus is a laugh to-day; yesterday it was tears; she was discouraged and indulged in a fit of uncontrollable weeping.

The other patient before you is also a hemiplegic whose face, as you see, is absolutely impassive. He can still walk but with very short steps. However it is not his hemiplegia to which I would call your attention. Notice the physiognomy, in which we do not see evidence of a single emotion; an immovable mask. The eye muscles are normal but deglutition is difficult and speech almost impossible; the intellect is intact and he comprehends perfectly his attacks. He is a laugher and a most pronounced one. Simply the word "laugh" spoken to him causes a burst of merriment that he is unable to control; he laughs till he chokes. He is menaced at all times with these attacks, is never sure of himself, and avoids everything which might induce them, for once begun he is bound to submit to his irrational laugh until it is exhausted. It is like an epileptic fit fated to pass through the cycle of convulsive manifestations and which nothing can arrest once the aura has appeared.

Finally I show you a young woman presenting the complete symptom complex of the hemiplegic form of multiple sclerosis. The spasmodic condition dates back three or four years. In contrast to what you have just seen in the preceding patients, she has no immobility of the face; on the contrary she talks with a grimace, puckering and drawing her lips in an affected manner. Her bulbar nuclei are not paralyzed but she is subject to the same attacks. The first time that we saw her she filled the ward with laughter that nothing could stop.

Thus we see a burst of spasmodic laughter in subjects whose faces are impassive, and we find the same phenomenon in this woman whose face, on the contrary, is in perpetual motion. Can a lesion explain these apparent contradictions? I will endeavor to demonstrate that it may. But first I wish to say a word about the anatomical arrangement of the lower levels of the cerebral hemispheres.

The figure represents a horizontal section of the left hemisphere. You recognize the island of Reil, the subcortical white matter, the claustrum, external capsule, lenticular nucleus and cau-

date nucleus which is nothing but the continuation of the putamen; posteriorly we find the cauda of this nucleus and internally the optic thalamus and ventricle. We know perfectly the course of the pyramidal tract in the internal capsule, the motor tracts for the inferior and superior extremities and for the face excepting the fibers for the orbicularis.

All these known divisions belong to the posterior limb of the capsule; in front is a terra incognita, the anterior limb which toward the peduncle becomes the "innominate tract" still called the "psychic tract." This tract does not always degenerate after cortical lesions. It is distinctly connected with the frontal lobes and is at first constituted in part by the fibers of the anterior thalamic region which rejoin it after having been distributed in the thalamus and which form the anterior root of this ganglion. Laterally from this tract, separated by a bundle of capsular fibers is seen Arnold's tract which extends to the vicinity of the corpora quadrigemina. We do not know which of these two tracts it is that conducts the stimulus from the frontal cortex to the centers of coördination in the optic thalamus, but we may be sure that the inferior fibers of one of them must fill this role. For in cases of complete destruction of the anterior limb of the capsule, see what we observe; whatever effort the patient may make he cannot succeed in stimulating the center of expression for the opposite side; one hemisphere only is active and he laughs on one side only. On the contrary let us suppose a lesion involving the knee of the internal capsule, the voluntary motor tract for the face, the geniculate tract. The psycho-reflex movements will then be possible and the patient will retain the power of facial expression. The symptoms will be those of psuedo-bulbar paralysis from a unilateral cerebral lesion.

Finally if the two geniculate tracts are involved, either by a double symmetrical lesion or by a single one at their point of decussation, the subject will be unable to execute a single voluntary movement of the face. Nevertheless he will have a tract conducting the stimulus of psychic impressions to the internal capsule and as far as the center for the coördination of facial expression; thus he will still be able to excite his bulbar nuclei, but their action will be deranged because they have, so to speak, lost their head; it is impossible for the patient to master his hilarity by voluntary inhibition and the "bulbar laugh" without limit and without control is the result.

Such is the lesion which I infer in the hemiplegics of whom I

just spoke, a lesion purely irritative when located in contact with fibers of the anterior limb of the internal capsule and paralyzing when it cuts the posterior limb. You see then why our patients have immobility of the face and why, also, when stimulated, excessive laughter or tears result. Ordinarily, indeed, they can be quiet for it is rare that the voluntary motor tract is totally destroyed but the veriest trifle sets them off and the laugh terminates in an explosion such as you have just witnessed with hiccough, laryngeal constriction, salivation, even vomiting, becoming a truly convulsive attack when the process extends to all the muscles.

Prof. Bechterew assumes a lesion of the thalamus in his case. I admit that I can scarcely imagine such a location; that is, a destructive lesion of the center of distribution of movements. If, in a hemiplegic, there were a lesion at the level of these centers, a lesion not destructive, but simply irritating, I admit that it might produce these irritative troubles of the movements of expression; but how at the same time explain the hemiplegia of Bechterew's case? It is absolutely necessary that there be a lesion of the internal capsule. It appears to me then much more reasonable to suppose a lesion of the capsule destroying the voluntary motor tract and in contact with the fibers for expression without destroying them. If, in cerebral affections, spasmodic laughter or weeping may depend upon this lesion, let me add that it may be seated high up or low down. The lower down it is toward the medulla the less we will find differentiated the expressions of joy, pain, hate, terror, etc., corresponding to the infinitely delicate play of the centers for the tegumentary muscles of the features. And this is explained by the well-known disposition of the various "systems of projection," the fibers converging more and more as we descend. If then we have a lesion located at the point of convergence we must admit that all the emotions will be expressed by a single play of feature. This is the case in the striking facies of pseudo-bulbar paralysis.

The localization which we have just studied produces in addition to the paralysis spasmodic troubles such as are caused by any irritative affection, as amyotrophic lateral sclerosis. For example you remember in the last patient presented we found the signs of multiple sclerosis of the hemiplegic form. There is besides a whole category of patients in whom we find this bulbar type, viz., idiots, who also have attacks of laughter. From chronic lesions of the capsule, of the ganglia of gray matter or of the cortex they realize the pathogenic conditions of an unstable physiognomy. Simple

atrophy, porencephalus, chronic diffuse encephalitis, etc., may be the cause of the phenomena. In these patients as in the preceding the lesion affects that part of the capsule which is frequently called the "psychic tract," the projection of Arnold's tract, or the anterior root of the thalamus. Here I must say mea culpa. At the time when I was studying with Prof. Charcot, the degenerations of the pes pedunculi our attention was directed to this bundle to which, as yet, no name had been given. I scarcely knew how to designate it and called it the "psychic tract." The name has been adopted in several classical works, but I am the first to recognize the fact that it is not entirely satisfactory. It certainly is the most direct path of communication between the frontal cortex and the gray matter of the base and medulla. If it takes no essential part in the elaboration of mental acts it at least plays a role in the external manifestation of these acts; a connecting link between certain centers where thought is born and others less noble that automatically present its reflections, it is the indispensable balance wheel of the movements which, rightly or wrongly, have been called the psycho-reflexes. For this and this only it seems in a measure to merit the title.

¹ Soc. of Neurol. and Psych. of Kasan, April 24, 1893.

² Die Bedeutung der Sehhügel auf Grund von experimentalen und pathologischen Daten. Virchow's Arch., 1887, vol. 110, p. 102.

³ De la physionomie et des mouvements d'expression, Paris, 1869.

⁴ Sensations et mouvements, Paris, 1887.

⁵ Nouvelle Iconographie de la Salpêtrière, 1888, t I, p 163.

⁶ *Legons du Mardi, 1888-89 et Clinique des maladies du systime nerveux t I.* p. 429.

⁷ Nouvelle Iconographie de la Salpêtrière, 1891, No. 3.

THE ETIOLOGY, PATHOLOGY, AND TREATMENT OF INTESTINAL FISTULA AND ARTIFICIAL ANUS.

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A correct appreciation of the causes which give rise to the formation of intestinal fistula is prerequisite for the adoption of appropriate treatment. The term intestinal fistula will be used in this paper to signify a communication between the lumen of any part of the intestinal tract and the surface of the body or with any of the hollow abdominal or pelvic viscera. A practical distinction must be made in regard to the size and character of such abnormal communication into 1, fistula, 2, artificial anus. The difference is one of degree and not of kind. Speaking from a purely surgical standpoint, a fistula of the bowels is an opening through which gas or only a part of the liquid and solid intestinal contents escape, while an artificial anus implies a complete interruption of the fecal circulation at the abnormal outlet. The latter condition is determined either by the size of the defect in the intestinal wall or the existence of mechanical conditions which divert the intestinal contents in the direction of the abnormal outlet and away from the distal side of the bowel. The mechanical conditions which thus divert the fecal current are either a flexion or the presence of a spur or septum at a point opposite to the abnormal outlet, caused by a projection of the intact part of the intestinal wall in the direction of the fistulous opening. The surgeon aims to produce such an obstruction to the fecal circulation when he desires to procure rest for the distal part of the intestinal tract by the formation of an intentional artificial anus. The amount of intestinal contents which escapes from the intestinal canal through such an abnormal outlet depends less on the size of the opening than the existence of one or both of the above mentioned mechanical conditions. If the intestinal tube is straight or only slightly curved, even a large opening may resemble a simple intestinal fistula, while, on the other hand, a small opening associated with a flexion, or a well-developed spur, appears clinically as an artificial anus and must be treated as such. The internal fistulae communicate most frequently with another part of

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the intestinal tract, the bimucous fistula of Dreschfeld, with the bladder, vagina, and uterus.

ETIOLOGY. Intestinal fistulae are divided into: 1. Intentional. 2. Accidental. The surgeon occasionally resorts to the formation of an intestinal fistula or artificial anus, in the treatment of inoperable mechanical obstruction, by resorting to a colostomy or enterostomy, according to the location of the mechanical obstacle which has necessitated the operation. If in such cases the intestinal opening is to serve only a temporary purpose, it is closed by operative measures in the same manner as will be advised in the discussion of the operative treatment of accidental fistula, after the distal part of the intestinal canal has been rendered permeable spontaneously or by subsequent operative interference.

Accidental fistulae are produced, according to the immediate cause, by: 1. Gunshot and stab wounds of the abdomen. 2. Submural injury of the bowel. 3. Ulceration of the bowel. 4. Strangulation of bowel. 5. Foreign bodies in intestinal canal. 6. Malignant tumors. 7. Intestinal actinomycosis. 8. Pelvic and other abdominal abscesses. 9. Appendicitis. 10. Unintentional injury to the bowel during abdominal and pelvic operations. 11. Ligatures. 12. Sutures. 13. Drainage tubes.

Gunshot and Stab Wounds. These injuries usually result in fatal septic peritonitis if the intestinal wound or wounds are large enough to permit escape of fecal material into the free peritoneal cavity, and not subjected in time to the direct operative treatment. A fecal fistula, external or internal, may result if the wound is small or if only a part of the intestinal wall has been injured, in which event the injured part becomes adherent to the parietal peritoneum or an adjacent hollow organ. A resulting circumscribed abscess may later under such circumstances, perforate the abdominal wall or discharge its contents into the adherent organ and thus establish either an external or internal fistula. According to the experience of surgeons during the War of the Rebellion, such an occurrence is more likely to follow injury of the colon than wounds of the small intestines.

Submural Injury. Partial laceration of the intestinal wall without a penetrating wound of the abdomen occasionally results in circumscribed peritonitis, caused by the migration of pathogenic microbes from the intestinal canal through the damaged wall to the surface of the bowel, where, if present in sufficient number, they may produce an abscess which not only completes the intestinal perforation, but may result at the same time in the formation of an

external or internal fistula. Such fistulae are usually small and close spontaneously in the course of time. In suspected submural injury of the bowel without evidences of complete rupture and fecal extravasation, it is of the greatest importance to enforce efficient treatment with a special view of preventing this remote complication.

Ulceration. Ulceration of the bowel is frequently followed by the formation of an intestinal fistula if the free peritoneal cavity is shut off by adhesions before perforation takes place and the ulcer manifests no tendency to repair. In the upper part of the intestinal canal the round, perforating ulcer of the duodenum may produce such a result. I have observed two cases of perforating typhoid ulcer in which a diffuse abscess formed which was freely incised and drained. In one case the abscess cavity contained at least a quart of fecal material which had evidently been accumulating for more than a week. The patient's general condition was such as to contraindicate search for and suturing of the perforation. In both cases life was prolonged from one to two weeks, but the patients finally succumbed to sepsis. I can readily conceive that under more favorable circumstances such patients might recover under similar treatment with an intestinal fistula which would in all probability heal spontaneously or could be closed later by operation with a good prospect of success. From my own personal observation I am satisfied that the ulcers which terminate most frequently in the formation of an intestinal fistula are of a tubercular character. I have observed a number of such instances.

The clinical course in such cases is almost typical. The localized peri-intestinal process is usually preceded by symptoms which point to a chronic catarrhal or ulcerative enteritis. A painless, cold abscess appears at the point where the perforated bowel has become attached to the abdominal wall. The abscess develops insidiously and progresses very slowly. If the abscess opens spontaneously or is incised, it contains, as a rule, no fecal material. The fistula forms later, or is produced at once if the granulations lining the abscess wall are scraped away with a sharp spoon. The communicating opening between the lumen of the bowel and the abscess cavity is temporarily blocked with granulations which, when removed or when destroyed by suppuration and degeneration, establish the fistula through which gas and fecal contents escape. In one case I found such an abscess in the umbilical region, and in another in the right linea semilunaris. In both cases a fecal fistula was established, and the patients eventually

died from the effects of the primary intestinal infection. Such fistulae hasten the fatal termination and are not amenable to successful surgical treatment. Tubercular abscesses in communication with a perforated intestinal tubercular ulcer should not be incised. The proper treatment for such cases is tapping of the abscess, followed by injection of iodoform emulsion, a form of treatment which will postpone, if not prevent, the formation of intestinal fistula. König is of the opinion that in many cases of tubercular intestinal fistula the primary disease starts in the peritoneum, resulting in perforation of the intestine from without inward. In such cases multiple fistulae are often established in rapid succession.

Strangulation. The functional disturbance of the intestine following strangulated hernia, terminating in gangrene without treatment or under conservative measures, will depend upon the extent of loss of mural tissue, and will vary from a small fistula only large enough to permit the escape of gas to a perfect artificial anus. Occasionally such an accident follows the reposition by taxis of a damaged intestinal loop. The Littre, femoral and properitoneal herniae are most likely to be overlooked by the surgeon, and consequently most frequently give rise to this complication.

Foreign Bodies. Perforation of the intestinal wall by a foreign body, preceded by a circumscribed plastic peritonitis, frequently results in the formation of an abscess which, when it reaches the surface or an adjacent hollow organ, is followed by an intestinal fistula. Small, slender foreign bodies, such as needles, pins and fish bones, often perforate the intestinal wall and find their way to the surface or into neighboring organs without giving rise to an intestinal fistula. In one case I removed four fish bones from a small abscess in the median line below the umbilicus, after which the abscess healed promptly and permanently. The foreign bodies which are most frequently found in abscesses preceding intestinal fistula are sharp fragments of bone, gall stones, and enteroliths.

Malignant Tumors. Malignant tumors may cause intestinal fistula either by producing obstruction followed by distention and ulceration on the proximal side or by directly implicating the intestinal wall. The latter mode of origin is the most common. The malignant tumor in such instances invades by contiguity the part or organ which becomes the seat of the intestinal fistula, and at the same time perforates the intestinal wall, so that the fistula is

surrounded everywhere by malignant tissue. Carcinoma more frequently pursues such a course than sarcoma. Infection of the malignant tumor with pus microbes plays often an important role in such cases. The suppurative infection often overshadows the malignant disease so completely that the surgeon is misled in his diagnosis, and institutes treatment appropriate for abscess when the operation reveals a malignant tumor as the foundation of the difficulty. Carcinoma of the cecum complicated by suppuration has been repeatedly mistaken for appendicitis. Carcinoma of the sigmoid flexure and cecum occasionally results in a pathological anastomosis between the affected part of the bowel and an adjacent loop of the small intestine. Carcinoma of the upper part of the rectum only too often invades the bladder and results in the formation of a recto-vesical fistula. Carcinoma of the stomach and transverse colon has resulted in pathological gastrocolostomy.

Actinomycosis. A number of cases of intestinal actinomycosis have been recorded in which the disease in its course perforated the intestinal wall and gave rise to diffuse abscesses and intestinal fistula. The ileo-cecal region is the favorite locality for such processes. In the only case of this kind that came under my own observation the disease originated evidently in the ileo-cecal region, but the abscess reached the cavity of Retzius and was opened in the median line above the pubes.

Pelvic and Abdominal Abscesses. By far the most frequent cause of intestinal fistula is pelvic and abdominal abscesses. Such abscesses sometimes are caused by migration of pyogenic microbes through a damaged or inflamed intestinal wall, perforating later the intestines, and finally open or are incised on the surface when the fistula is completed. The fistulous tract is often long and tortuous. More frequently a pyosalpinx or acute phlegmonous abscess of the parauterine connective tissue pursues such a course. Such abscesses open most frequently into the rectum, bladder, and intestinal coils upon the floor of the pelvis, but they may open into the cecum and sigmoid flexure. Externally they point most frequently in the groin, but they may also reach the surface through the sacro-sciatic notch and occasionally extend to the lumbar region. The external fistulous opening may be found in any of these localities. Not an infrequent cause of intestinal fistula is tubercular abscess resulting from tubercular spondylitis and tuberculosis of the pelvic bones. In some cases the abscess is discharged first into the cecum or rectum; less frequently into other parts of the large

and small intestines, and later reaches the surface; or the fistula forms in the course of suppurating tubercular tracts. Rectal insufflation is an exceedingly valuable diagnostic test, not only for the purpose of ascertaining whether or not the fistulous tract communicates with the intestine, but also in demonstrating the exact location of the intestinal perforation.

Appendicitis. Appendicitis is the most frequent cause of intestinal fistula in the ileocecal region. The fistula is produced in one of two ways: 1. Sloughing or perforation of the appendix. 2. Rupture of an abscess of appendical origin into the cecum or adjoining intestinal loops, with the subsequent formation of an external opening. If the entire appendix is cast off as a slough with the contents of the abscess in gangrenous appendicitis, the fistulous opening involves the cecum and occupies that part of the bowel to which the appendix is attached. Clinically such a fistula resembles a cecal fistula produced by other causes. In partial gangrene of the appendix and perforation of the organ, treated upon the expectant plan by incision and drainage without removal of the appendix, if a fistula persists, the remaining lumen of the appendix communicates with the cecum on one side and the external fistulous tract on the other. The fistulous opening into the bowel under these circumstances is so small that seldom anything else but gas escapes. Such fistula occasionally heals spontaneously in the course of a few weeks; but after it has become well established, closure of the fistula without operation is not to be expected. A paratyphlitic abscess rupturing into the cecum often terminates in a permanent cure, but sometimes it results in extensive destruction of the cecal wall followed by the formation of a correspondingly large fistulous opening. The location of the cecal opening will vary according to the situation of the abscess. The cases of cecal fistula which have come under my own observation involved either the anterior or posterior wall; but they may affect any part of the cecum, and occasionally the abscess ascends in the direction of the ascending colon, which it may perforate and cause a fistula of this part of the large intestine. I have seen three cases of fistula of the cecum following appendicitis in which the opening of the abdominal wall and cecum was large enough to insert three fingers. In all of these cases the fecal current was arrested at the opening by the presence of an effective spur formed by the projection of the opposite wall toward the opening in the cecum. It is in cases of this kind, if the abscess has

been opened by the surgeon, that he is credited by the patients and friends with having cut the bowel, when in reality the intestinal opening either was present at the time the operation was made or occurred later by sloughing of the inflamed cecal wall.

Injury of Bowel during Abdominal and Pelvic Operations.

Under this head it is not my intention to discuss those gross lesions of the intestines occurring during abdominal and pelvic operations which the surgeon recognizes at once and resorts to the necessary treatment. I wish more particularly to refer to overlooked and incomplete wounds of the bowel as causes of intestinal fistula. Modern gynecology encourages heroic attempts in the removal of abdominal and pelvic tumors that only a few years ago would have been regarded as inoperable by the boldest surgeons. The removal of adherent tumors and pus tubes brings the operator often in very close contact with the intestines. The inflammatory processes which have produced the firm adhesions have often resulted in great damage to the adherent part of the intestine. The intestinal wall, from pressure, cicatricial contraction, and impaired nutrition, is often found not much thicker than ordinary writing paper, hence exceedingly liable to be torn during the separation of firm adhesions. The intestine attached to a tumor or pelvic abscess by firm and old adhesions has lost its outer or peritoneal coat over an area corresponding with the extent of the adhesions. Unless the surgeon practices the necessary precaution of making the detachment at the expense of the tumor or tube, if he does not tear an opening into the bowel he will at least seriously damage the intestinal wall. I have no doubt that in numerous instances of this kind surgeons have overlooked minute perforations in the bowel which, if they did not result in fatal septic peritonitis, became the direct source later of an intestinal fistula. It must also be remembered that a greatly damaged intestinal wall is permeable to pyogenic microbes, and consequently becomes not infrequently the sole cause of a late infection after laparotomy, and if the patient survives, of abscess and intestinal fistula. Every experienced surgeon will recall to his memory such mishaps when he could assure himself that in other respects the operation was faultlessly performed. The examination of detached intestinal loops for perforations or other serious damage should not be postponed until completion of the operation, as it may be impossible to find them again at that time. The inspection should be made at once and all defects remedied before additional adhesions are separated. By pursuing such a course,

and by detaching the adhesions at the expense of the part to be removed, we will hear less in the future of septic peritonitis, abscess and intestinal fistula arising from this cause after laparotomy.

Ligatures. In small wounds and limited gangrene of the bowel Astley Cooper made a small cone, the apex of which corresponded with the injury or disease, and applied a ligature of fine silk around the base. The ligature cuts its way into the lumen of the bowel during the time the resulting defect becomes sealed by plastic lymph. We can readily conceive under what circumstances such a procedure would prove safe and efficient. If the parts included in the ligature and the ligature itself are aseptic the formation of a fistula is prevented by the production of new tissue around the ligature and included mass before the ligature reaches the lumen of the bowel. If, on the other hand, the asepsis is not perfect, and suppuration occurs in the track of the ligature, an intestinal perforation is very likely to ensue.

After separation of an adherent intestine bleeding points are often tied with silk. Isolation of the bleeding vessel is usually out of question, and more or less of bowel tissue is included in the ligature. It must not be forgotten that under such conditions the bowel has been deprived of its peritoneal investment, and consequently the facilities for encapsulation of the ligature are diminished. If to this is added an extremely attenuated bowel wall, it is not difficult to understand in what way a ligature may sometimes give rise to a late perforation, peritonitis, abscess, and intestinal fistula.

Sutures. Careless suturing of the abdominal incision is responsible for many accidents to the intestines. Undue haste in completing this part of the operation is often severely punished. Unless the operator resorts to proper precautions the needle may transfix a part of the circumference of the small intestine; on tying the suture the loop is anchored against the external incision, the ligature later cuts it away through the included part of the bowel, and if a fatal peritonitis does not result an intestinal fistula is sure to follow. I have seen two cases of intestinal fistula, in the practice of distinguished surgeons, where I had reason to believe that the intestinal fistula had such an origin. But this is not the only way in which sutures have produced this complication. In tying the sutures a loop of the underlying intestines may be caught between the suture and the abdominal wall, and on tightening the suture strangulation results, fol-

lowed by intestinal obstruction, gangrene of the strangulated part of the bowel or coil, abscess and fistula. Again, an intestinal coil may escape between the sutures and become strangulated between the margins of the wound with similar consequences. It is time that surgeons should recognize the suture as a cause of such complications and resort to efficient prophylactic measures. I am strongly convinced of the value of a separate row of buried absorbable peritoneal sutures in closing the abdominal incision, both for the purpose of guarding against accidents to the intestines and as a prophylactic measure against ventral hernia. Whenever it is possible the omentum should be drawn downward far enough to cover the entire length of the incision. The use of the aseptic compress as an aid in suturing the external wound is so well known that it is only necessary to mention it in connection with my subject.

Drainage Tubes. The last, but by no means the least important subject which I shall discuss in connection with the etiology of intestinal fistula is the drainage tube. Prolonged tubular drainage with glass or rubber tubes is a well-known factor in the production of intestinal fistula. The opening in the bowel is produced by pressure atrophy. I am inclined to believe that the elastic pressure caused by rubber drains is more injurious than that exerted by glass tubes. Long-continued tubular drainage for suppurative lesions is more dangerous in this respect than similar methods of drainage for parenchymatous oozing or other aseptic pathological conditions. In the former case the suppurative inflammation along the drainage canal adds to the destructive effect of pressure. It will be difficult, if not impossible, to entirely eliminate this etiological element by any amount of care in cases requiring long-continued tubular drainage. In recent cases necessitating drainage for a few days I have been in the habit of surrounding the glass or rubber drain by a few layers of iodoform gauze, for the purpose of diminishing the harmful effects of localized pressure. In drainage for suppurative affections it is advisable to gradually reduce the size of the tube for the same reason, and whenever practicable interpose between the intestine and tube a few layers of iodoform gauze.

TREATMENT. The treatment of an intestinal fistula must have for its aim closure of the abnormal opening with as little interference as possible with the lumen of the bowel. The statement has been made, and is borne out by clinical experience, that many intestinal fistulae close spontaneously. This favorable

termination may be expected in cases in which the opening in the bowel is small, the immediate cause of a benign and temporary character, the general health of the patient not much impaired, and the fistulous opening in the bowel so located that it can readily become attached to the parietal peritoneum or the serous investment of an adjacent organ. The spontaneous healing of an intestinal perforation is always followed by permanent parietal or visceral adhesions. In fistulae resulting from tuberculosis, malignant disease, and actinomycosis, spontaneous healing from the very nature of the primary cause, is out of the question, and in the majority of these cases operative treatment with a view of closing the fistula is contraindicated. The operative treatment in such cases deserves consideration only in the event that the primary cause can be completely eliminated before an attempt is made to restore the continuity of the bowel. In fistula caused by malignant disease, in which the extent of the primary cause has rendered a radical operation inapplicable, it may be advisable to secure rest for the diseased part of the intestine by establishing an artificial anus on the proximal side. In the treatment of tubercular and actinomycotic fistulae the primary disease must receive proper attention, and, in case it is amenable to successful treatment, the fistula will heal spontaneously or is subjected later to appropriate surgical treatment. Before I proceed further to the discussion of the surgical treatment of intestinal fistula it is important to refer briefly to a few of the more important points of the

PATHOLOGICAL ANATOMY. For the sake of simplicity I will describe the different forms of intestinal fistula as we observe them on the surface of the body, although the same remarks will apply to the internal fistulae where similar conditions are developed.

Intestinal Fistula. Intestinal fistula as defined in the introductory remarks of this paper presents itself in one of two forms: 1. A fistulous tract leads from the surface to the opening in the intestine. 2. The mucous membrane of the intestine lines the fistulous tract and is continuous with the skin on one side and the mucous lining of the intestine on the other. In the first variety the opening in the bowel is more or less distant from the surface, and the tract is lined by granulations. In the second variety the intestinal wall reaches the surface, and the margins of the opening in the bowel form the border of the external opening, the entire fistulous tract being lined by mucous membrane. In both instances the opening in the bowel is lateral, the intes-

tinal tube either straight or slightly curved, presenting no mechanical impediments to the fecal current.

Artificial Anus. The interruption, partial or complete, of the fecal current at or in the immediate vicinity of the fistula is usually due to one of three causes: 1. Intestinal obstruction below the fistula. 2. Flexion of the bowel at a point corresponding with the location of the fistula. 3. The presence of a spur opposite the opening in the bowel. If perforation of the bowel takes place in consequence of an intestinal obstruction, the cause or causes which have given rise to this accident maintain the obstruction and all of the intestinal contents escape through the fistula, which then serves the purpose of an artificial anus. If the perforated part of the bowel becomes flexed by adhesions or otherwise, the flexion narrows the lumen of the bowel and directs the fecal current toward the abnormal outlet. Under such circumstances a considerable part of the intestinal contents necessarily escapes through the fistulous opening. If the flexion becomes more acute the intestinal wall opposite the opening forms a spur which when fully developed completely intercepts the fecal current and transforms the fistulous opening into an artificial anus.

From these remarks it necessarily follows that spontaneous healing can only be expected in cases in which the fistulous tract is not lined by mucous membrane and in which the fecal current meets with no impediment by flexion or spur formation. As the fistulous opening in the bowel is often beyond the reach of an examination to determine the actual conditions, time plays an important part to enable the surgeon to determine whether or not surgical interference is necessary. In the absence of an *indicatio vitalis* an operation should be postponed until the clinical course has demonstrated that Nature's resources are inadequate to accomplish the desired object. An early operation is demanded if the fistula involves the upper part of the small intestines and the escape of chyle endangers life from inanition. In the absence of such an indication, and in the absence of positive proof that spontaneous healing is impossible, conservative treatment should be continued until the indications for a radical operation are established. A carefully selected diet, attention to the condition of the bowels, rest, compression over the fistulous tract, and antiseptic treatment of the suppurating tract embrace the leading indications of the expectant treatment.

SURGICAL TREATMENT. The surgical treatment must be governed by the pathological conditions which characterize each in-

dividual case. A careful inquiry concerning the etiology and pathology in each case is therefore necessary in order to enable the surgeon to select the appropriate therapeutic resources.

Cauterization. Cauterization of the fistulous tract is useful not only in expediting spontaneous healing in cases in which such a result is to be anticipated, but also for the purpose of removing anatomical conditions incompatible with such a termination. Nitrate of silver is most efficient in stimulating the process of repair in cases in which the tract is lined by flabby, infected granulations. Benefit from this agent can only be expected if it can be applied the whole length of the canal. Its application is worse than useless if the entire tract is not accessible either on account of its length or tortuous direction. If the fistulous tract is lined by mucous membrane, is short and readily accessible in its whole length, the Paquelin cautery can be resorted to with advantage. The cauterization must be made deep enough to destroy the entire thickness of the mucous membrane. On separation of the tubular eschar the fistulous opening is enlarged, and for a time more of the intestinal contents escape through it; but in a short time the canal becomes blocked by granulations, which eventually result in its closure. Before using the cautery the length of the tract must be carefully determined, in order to protect the bowel against injury from the point of the instrument. The same instrument is of value in the treatment of larger fistulae lined by mucous membrane not complicated by mechanical impediments to the fecal circulation. I have resorted to this procedure in a number of cases of surface fistulae lined by mucous membrane, and have been well satisfied with the results.

Drainage of Abscess Cavity. An abscess cavity interposed between the intestinal opening and the fistulous tract on the surface or in one of the pelvic organs, constitutes often an insurmountable obstacle to spontaneous healing. In many such cases the abscess cavity is imperfectly drained and is being continually contaminated by fecal material. If the abscess is so located that it can be safely and more efficiently drained, such a procedure will often accomplish all that is desired. This method of procedure is particularly indicated in the treatment of pelvic abscesses complicated by intestinal fistula. It must, however, not be forgotten that under such circumstances the organs in the vicinity of the abscess are often displaced by inflammatory adhesions and exposed to injury in efforts to secure better drainage.

Mechanical Repression of Spur. The spur has been recog-

nized as a cause of the persistence of intestinal fistula for a long time, and different methods of treatment have been devised for its removal. Desault advised the insertion of a roll of charpie into the bowel with a view of increasing the size of the lumen of the bowel and of repressing the spur. Banks inserted a large rubber tube, which he fastened in the fistula, for the same purpose. As the formation of the spur takes place in consequence of the flexion of the bowel, we can readily understand why all such mechanical devices have proved of so little value.

Removal of Spur. The first efforts to remove the spur by operative procedure were made by Schmalkalden in 1795. He removed the spur with scissors and knife. The disastrous results which must have necessarily followed this operation led Dupuytren to accomplish the same object by a bloodless method. He devised for this purpose a clamp, which he applied to the spur, and by tightening the screws connecting the branches made it cut its way through the tissues by causing linear necrosis of that part of the septum included in its branches. The instrument effects its object in from three to eight days. It is then again applied on the side of the linear section, and the same procedure is repeated until the spur is removed. The results of this operation were quite satisfactory before laparotomy was made a safer procedure.

In 1824 Dupuytren reported forty-one cases, of which number twenty nine were cured and only three died. Later Heiman collected eighty-three cases with a mortality of 4.83 per cent. The most recent statistics collected by Körte comprise 111 cases with eleven deaths. In many of the cases, however, the fistula remained. After the removal of the spur the margins of the fistula were usually destroyed with the actual cautery. I shall show further on that the spur develops in consequence of flexion, and that if the flexion is arrested in the operative treatment of artificial anus its removal is superfluous. The recent advances made in intestinal surgery will render Dupuytren's operation obsolete in the near future.

Closure of Fistula by Plastic Operation. The closure of intestinal fistula by plastic operation was introduced by Dieffenbach. It was not his intention, by the operation which he devised, to close the opening of the bowel at once, but to cover it with a bridge of skin, leaving the closure to be accomplished later gradually by granulation. Between two elliptical incisions he excised the margins of the fistulous opening and the skin surrounding it. A bridge of skin is made by making on one side of the oval defect,

and the necessary distance from it, a curved incision twice the length of the wound, and, by undermining the skin, a bridge is formed with which to cover the opening. The oval wound was closed by interrupted sutures. The operation leaves a crescent-shaped raw surface produced by sliding the bridge, which was left open to heal by granulation. This operation, as well as plastic closure by pedunculated flaps, had their field of usefulness before abdominal operations were rendered comparatively safe by an improved technique and the general adoption of aseptic precautions, but are seldom, if ever, resorted to at the present time.

Suturing of Fistula without Opening the Peritoneal Cavity. The closure of an intestinal fistula by vivifying its margins and suturing, without detaching the bowel or opening the peritoneal cavity, has not yielded very satisfactory results. The operation is only adopted for cases in which the intestine is attached to the abdominal wall and the fistulous opening is readily accessible, and where no canalization impediments are present. I have succeeded in two cases in closing the fistula completely and perfectly by one operation.

In advising a resort to this, as far as life is concerned an absolutely safe operation, I must insist in the first place upon the necessity of freely excising the fistulous tract, removing all of the scar tissue and a circular strip of the mucous membrane lining the margins of the fistulous opening in the bowel, as well as the importance of bringing in accurate apposition the different anatomical structures by several tiers of buried sutures. A conscientious observance of these precautions will frequently reward the surgeon with success in closing an intestinal fistula by extraperitoneal suturing.

Intestinal Anastomosis. The formation of an intestinal anastomosis in the treatment of an intestinal fistula is indicated in cases in which the extraperitoneal methods are not applicable or have proved unavailing and the usual intraperitoneal operations are contraindicated. Under such circumstances the exclusion from the fecal circulation of the perforated loop by the formation of an anastomotic communication between the afferent and efferent limbs of the loop, will remove the annoyances incident to an intestinal fistula and place the parts in a more favorable condition for spontaneous healing or more successful surgical intervention. The anastomotic opening should be made at least two inches in length. The operation can be performed most safely by the use of decalcified perforated bone plates or by Czerny-Lembert sutures.

Enterectomy. The mortality attending enterectomy and circular enterorrhaphy in the treatment of intestinal fistula and artificial anus remains great even in the hands of experienced operators. The statistics of Reichel give a mortality of 37.8 per cent, and those of Hertzberg 27 per cent. In view of this fact it is apparent that this operation should be reserved for cases not amenable to successful treatment by safer procedures. I am confident that the indications for this operation can be limited to exceptional cases. If the intestine is not attached to the abdominal wall, it is much safer to open the free peritoneal cavity in search for the affected part of the intestine than to follow the fistulous tract as a guide. If possible, the intestine should be tied on each side of the fistula with a strip of gauze or a rubber band before it is detached, in order to guard more efficiently against fecal extravasation. The operation should be performed with the patient in the Trendelenburg position and the peritoneal cavity amply protected by aseptic compresses during the resection and suturing. After the resection the continuity of the bowel should be restored by circular enterorrhaphy by Czerny-Lembert sutures.

Preliminary Transverse Suturing of the Intestinal Opening as a Prophylactic Measure against Infection during the Operation for Artificial Anus. There can be but little doubt that the operative treatment of intestinal fistula or artificial anus requiring opening of the abdominal cavity has been attended by an alarming mortality, owing to infection caused by the escape of feces through the intestinal opening. Packing the opening with gauze or cotton is a very inefficient way in which to prevent fecal extravasation. The use of clamps and ligatures on each side of the opening in the bowel is equally unreliable. It appears to me the only safeguard against this course of danger is preliminary closure of the intestinal opening by suturing, placing the sutures so close together as to absolutely prevent the escape of any of the intestinal contents. After this has been done the field of operation is once more thoroughly sterilized before the abdomen is opened and the intestine detached. The sutures should include all of the tunics of the bowel. With few exceptions this row of sutures will remain as Czerny sutures, to be buried after the bowel has been detached by Lembert stitches. I have already made a statement that I look upon flexion of the bowel as the most important factor in producing the spur, and that measures which are calculated to correct the flexion will prove useful in removing the spur. In artificial anus, produced accidentally or intentionally, the flexion is caused by the

prolapse of the intestinal loop into, and sometimes even beyond, the opening in the abdominal wall. If the intestine is detached the flexion is diminished or completely corrected, and its recurrence is prevented by transverse suturing of the intestinal opening. A study of my cases has convinced me that the provisional closure of the intestinal opening by transverse suturing before using the knife is the most efficient prophylactic measure against infection, and that resection of the intestine for fistula and artificial anus can be avoided in the majority of cases, and that in its place transverse suturing and correction of the flexion will yield better results.

532 DEARBORN AVENUE.

THE MECHANICAL TREATMENT OF INFANTILE PARALYSIS.

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The mechanical treatment of infantile paralysis may be directed to one of three ends, namely: To the prevention of deformity; to the correction of existing deformities resulting from the neglect of proper treatment; and to remedial ends.

Both physicians and surgeons are too prone to take a hopeless view of these cases; to neglect them during the interval which is between the onset of the disease and the development of the deformity; to refer them to a surgical instrument maker for the application of conventional braces, without thought that these might be made a means of cure; or to subject them to the never-ending blandishments of the sleek electrician.

Cases of infantile paralysis are in a certain way hopeless cases, in that they rarely fully recover; but they are on that account the more deserving of an earnest and intelligent effort, and the gain, as a rule, fully repays the effort made.

The mechanical treatment of infantile paralysis should commence during the first stage, the acute attack, and should consist of any simple and convenient dressing which will put that part at rest and continuously retain it in the normal position until all sensitiveness of skin and muscles has passed away. Such treatment

will often be rewarded by an early and complete restoration of function.

When the affected member is not retained in the normal position during the acute stage it assumes a position of more or less deformity, the affected muscles being stretched by their unopposed and healthy antagonists. For some time this deformity can readily be overcome, but sooner or later this ceases to be possible, structural shortening having taken place in the healthy muscles.

The problem then is to rectify the deformity before attempting further treatment. This may be done by stretching, or by a cutting operation. Theoretically a more perfect result should be had by stretching the structurally shortened muscles to their original length than by elongating their tendons by a cutting operation; but practically I have found the results equally good; and practically it is possible for only a few to successfully correct these deformities by stretching, whereas any one may succeed with the knife. My personal preference is for the complete correction of



THOMAS' WHIP.

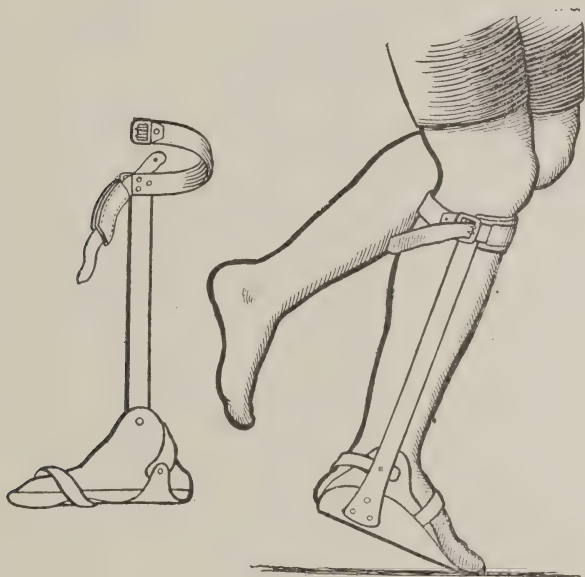
the deformity by operative procedures before attempting mechanical treatment, and I believe it to be of great importance that the correction of the deformity be so complete that there is no tendency in the member itself to return to the old position. Then it will be found possible by simple means to retain the corrected position and relapse can only arise from gross neglect. When the deformity has been fully corrected and it is possible to readily maintain this new position the limb is relatively in a like condition to that present before the development of the deformity and treatment aimed to the cure of paralysis may be undertaken.

This treatment should consist in restoring the overstretched muscles to their normal length, in stimulating them to renewed contractility if any such remains in them, and in case their usefulness is permanently lost, in inducing sufficient structural shortening in them to maintain the limb indefinitely in a useful position.

All that is necessary for the taking up of the slack in overstretched muscles is to place the limb in such position as will most completely relax the muscles in question, and to uninterruptedly retain it in that position for a sufficiently prolonged period,

that is to say from six to eighteen months. Many muscles that at first appear to be wholly paralyzed regain much of their former contractility when given the advantage of diminished length.

The second stage of treatment, that of stimulating muscular contractility, demands the continuance of retentive appliances, but allows a certain range of use. For instance, in the usual paralytic condition below the knee with dropping of the foot, during the first stage of treatment I am accustomed to use Judson's brace without motion at the ankle joint, but during the second stage to place a stop joint between the foot plate and the leg piece to prevent dropping of the foot, while at the same time it permits flexion of the dorsum



JUDSON'S BRACE.

of the foot toward the shin at the end of each step in walking. Stimulation of the part may be had by a variety of means. Baking of the limb in a special oven either with or without rarification of the air in the oven is of great advantage, but rarely can be carried on outside of an institution, and about all the overheating that the average case gets is to be had from an extra woolen stocking. Stimulation and exercise by electricity I believe to be useless unless applied by the surgeon himself at short intervals covering a long period of time, two or three years. In the hands of the family it is practically useless, and in the hands of the quack an effective means of extortion. Almost the same good can be had

by a simpler and an inexpensive method. Massage is a valuable remedy, but like electricity, it is expensive and readily serves the purposes of quackery. Sometimes parents can be trained into using it with gain, but more often it is by them neglected and done in a slipshod manner. A simple device for which I am indebted to the late Mr. H. O. Thomas, which serves almost if not quite as useful an end as electricity, and at the same time takes the place of massage to an equal degree is the daily flagellation of the part with a short whip consisting of a lion handle ten or twelve inches long to which is attached a double leather lash from an inch to an inch and a half in width. The rapid application of this instrument for a few minutes over the paralyzed muscles with the limb held in such a position as most completely relaxes the muscles will serve equally well for electricity or massage, and may be administered equally well to the rich or to the poor.

In those cases where the paralysis of a muscle, or a group of muscles, is complete and recovery hopeless much can be done by obtaining an exaggerated degree of structural shortening in the paralyzed muscles. The extremity should be placed in the extreme opposite deformity to that to which it tends, with the dorsum of the foot flexed into close apposition to the shin in dropfoot, and with the hand hyperextended into dropwrist, and in that position must be held continuously for a long period, at least for a year or eighteen months. Not once in all that time must it be allowed to drop. In this way sufficient structural shortening, as a rule, takes place to maintain the extremity in a useful position and enable the patient to dispense with braces, a matter of no small moment since otherwise the braces must be worn all through the period of the growth of the child and not infrequently all through life.

The main point then which I wish to make in the successful treatment of these cases is the obtaining of structural shortening of the elongated muscles.

103 STATE STREET.

OPERATIVE TREATMENT OF PARALYTIC FLAIL JOINTS.

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I wish to draw attention to but one phase of treatment in connection with the aftereffects of acute or chronic poliomyelitis. I allude to what may be called the operative treatment of flail paralytic joints, joints in fact deprived of function by complete and not partial paresis of all the muscles governing their movements. The discussion of the treatment of limbs less severely affected than this is absorbing, but too comprehensive for the present occasion. Suffice it to say that our leading surgeons are much too prone to take a pessimistic view of the limitation of their art in this department than the possibilities warrant, and they are apt to relegate to the physician, functions which they could themselves infinitely better perform.

Within the last ten years I have had under treatment over 600 cases of the effects of poliomyelitis, and of this number a not inconsiderable portion exhibited complete paralysis of the muscles influencing movement in both knee and ankle, or in ankle only. The difficulty and expense connected with the purely mechanical treatment of these cases, extending as it does over the whole of a lifetime, will be readily appreciated, and it is this fact as much as any other which helped to persuade me to try and transform the flail limb into a member approximating as closely as possible to the splint which I wished to discard. In a large majority of the so-called complete paralysis of the lower limb the psoas and iliacus muscles are unaffected, and all mechanical means are therefore based, if to be of real use, upon the integrity of these muscles. The knee and ankle are kept fixed and the psoas muscle is prepared to carry the leg, splint and all. In consequence we are very apt to find our more weakly paralytics very easily tired by the weight of their support and so they fail in availing themselves of the opportunity which presents to strengthen their only pair of muscles of progression.

The procedure I intend to bring before your notice is that of anchylosing the knee and of partially anchylosing the ankle, and in support of my plea I append a brief outline of fifteen cases upon which I have operated.* These do not comprise all up to date, as

* This table of cases is omitted for lack of space.

there are eleven remaining, not included in the list, a sufficient time not having elapsed to render it advisable to publish their results, although they promise very well.

The operation consists in opening the joint, and with a scalpel or sharp gouge, peeling the superficial area of cartilage of the whole articulation in the case of the ankle, and gouging the bone in the case of the knee, keeping the joint completely at rest for some weeks subsequently, and for a long period fitting the limb with a simple apparatus which will enable the patient to walk without throwing a strain upon the newly fixed joints. An excision is more than the case requires and involves a greater sacrifice of tissue than an already shortened limb can spare. To expose the knee I make an incision across the front of the joint, covering fully half its circumference and curved so as to pass just below the lower end of the patella. The flap is turned up and all the vessels ligatured. I next remove the semilunar cartilages, and with sharp short bladed knife or gouge peel away the cartilages, and the underlying layer of bone, so as to leave a raw surface over the whole of their extent. The crucial ligaments are generally left intact. The structures are then carefully reunited by deep and superficial sutures, no drainage tube of course being employed, and the wound is well covered with perchloride wood wool wadding.

The operation may be carried out in the ankle joint in one of two ways according to the circumstances of the case. In old cases where the foot is deformed and assumes the equino-varus variety, the astragalus is well to the front. In such, I force the foot into a position of extreme equino varus, and make an incision immediately in front of the external malleolus, following the line of the ankle joint and dividing all structures down to the astragalus, generally only severing the paroneus tertius tendon. The other tendons are held aside and the articulating surface of the astragalus exposed. With a gouge or knife several grooved portions of the articulating cartilage are removed. If complete bony ankylosis of the ankle be desired it will be necessary to gouge bone. If a fibrous ankylosis be wished it will be sufficient to peel off parts of the cartilage. The ankle is kept extended while some pieces of the articulating surfaces of the tibia and fibula are removed. A few vessels are tied, the foot is placed in its normal relation to the leg and a suture or two close the wound. A pad of wood wool tissue applied over all and firmly bandaged completes the procedure.

In other cases the astragalus is more easily approached from behind, and in such the foot is firmly flexed on the leg and an

incision down to the bone is made along the external border of the tendo Achillis. The posterior ligament is now freely divided, and the gouging takes place as in the former operation.

No mishap has occurred in any of my series of twenty-six cases. Each wound has healed by first intention, and contrary to expectation, those cases where trophic changes were most marked healed as readily as in others whose nutritive conditions were nearer normal. Bearing upon this point I may mention that if a fracture occurs in these dwindled, mottled, blue, cold limbs as I have on occasions observed, it unites without any appreciable delay. There is little or no pain attending the healing of the wound. If I have to operate upon both knee and ankle, I apply two splints; one a flexible metal splint so designed as to permit of early dressing of the ankle wound, and a Thomas' bed splint for the knee. These can be used admirably in combination. During the stage of getting about the Thomas' splint can be altered to admit of walking, and the ankle is in that way saved from every harmful influence.

I have not included in this list a similar operation which I perform in talipes calcaneus often accompanied by pes cavus. It gives to my mind very much more satisfactory results than the shortening of the tendo Achillis as suggested by Mr. Willett. Some years ago I operated on several tendons in the prescribed manner, but I can only recall two cases where the improvement was maintained for any length of time, and in these, prior to operation, there was considerable muscular power in the muscles related to the tendo Achillis and in their opponents. The moment we try to pit a paralyzed tendo Achillis shortened by operation against the superincumbent body weight exercised during locomotion, it can only have one result; and that is a fresh and speedy yielding of the tendon. We must have some vitality in the gastrocnemius and soleus. If Willett's operation plus exsection of cartilage be performed, we will obtain considerably better results, for on exhibiting the joint from behind we can remove and shorten the tendo Achillis, and remove just sufficient cartilage to limit the action of the ankle to about 20° . The same procedure may with benefit be applied where in addition to an elongated heel tendon the tibialis have been completely paralyzed, producing a deformity of calcaneo valgus which cannot be rectified by the hand.

It is necessary in all cases to prolong for a considerable period the use of apparatus, as it takes a considerable time for the joints to become so securely fixed as to bear the body weight and

the ankle lever strain. These, however, can be discarded so soon as the surgeon finds that the knee is completely ankylosed and a limited but free movement in the ankle varying from five to fifteen degrees is sharply and firmly checked in front and behind.

In looking up the literature of this subject a few days back I find that Albert first suggested excision of the knee in paralysis, and that other operations have been reported by Wolff, of Berlin, and Zinsmeister. This, of course, is only interesting from the historical aspect. I am conscious that a sufficient time has not elapsed to fully test the integrity of these altered joints, but I feel very confident from present appearances.

If I succeed in persuading some of my surgical friends to adopt these operative methods it cannot fail to result in rendering much needed assistance to a sadly neglected group of cripples.

THE SPECIAL TREATMENT OF DIPHTHERIA.

By W. K. JAKES, M. D., CHICAGO.

Bacteriology has given us indisputable evidence that diphtheria is the superficial invasion of the tissues by a certain germ, usually at a predisposed portion of the respiratory tract.

These germs multiply as rapidly as conditions permit at the point of invasion and, penetrating the tissues, cause inflammation and necrosis, thus producing the diphtheritic membrane, which is the usual diagnostic evidence of the disease.

In the growth and development of these germs, certain ptomains are produced which cause constitutional disturbances. Diphtheritic membrane is filled with germs, spores, ptomains and the poisons which decaying tissues produce. The living tissues being intimately connected with this virulent substance, absorb from it the poisons dangerous to life. It is a principle of surgery that as soon as tissue becomes dead, its removal is imperative. The principle is the same in dealing with necrosed diphtheritic membrane as with a mortified finger; and if it cannot be removed, it should be rendered antiseptic.

Diphtheritic membrane is also a source of infection to other portions of the respiratory tract. Healthy mucous membrane, covered with its protecting mucus, is seldom inoculated. As soon as the disease is started on a favorable spot of the respiratory tract the temperature begins to rise, the protecting mucus is no longer

poured out, and the entire tract becomes predisposed to the disease. When mucous membrane in this condition is bathed twenty times a minute with air laden with spores and particles of membrane as it begins to shred off, inoculation is almost certain.

A careful study of diphtheria, and the conditions under which it develops, must impress the student with the importance of early and effective treatment. Like a conflagration, to which it may appropriately be compared, it may be easy to control at the start. The danger in diphtheria increases as the disease becomes inaccessible. A diphtheritic spot on the tonsil may cause but little inconvenience, and if properly treated, disappears in a short time; but if neglected until it poisons the system and the constitutional effects are manifest, large portions of the respiratory tract become predisposed, inoculation follows and death results. Therefore, prevention is the most important point.

INDICATIONS FOR TREATMENT.

Limit the spread of the disease.

Destroy or retard the growth of the diphtheritic germ.

Neutralize and counteract the constitutional effects of the ptomaines.

Support nutrition and encourage elimination of waste products and poisons.

Preserve the vitality of the patient by allaying fear and encouraging rest.

In selecting remedies to meet these indications, all the conditions should be understood. The usual seat of the disease being on the mucous membrane of the respiratory tract, remedies are limited to those which are tolerated by this tender tissue. Congestion and inflammation are conducive to the spread of the disease, and medicines which produce this condition, either on the diseased site or the surrounding tissues should be avoided as harmful; for if these tissues are injured, although every germ be destroyed at the point of application, the surrounding mucus would contain many more which would reinoculate the inflamed site and result in a more aggravated condition than before. The ideal remedy which will destroy the bacilli and not injure the tissues has not yet been found.

Through the tissues of children diphtheria spreads rapidly; while in the denser, firmer tissues of the adult, the progress is more slow. If the tissues of the child, surrounding the diphtheritic membrane, can be rendered dense like those of the adult, the progress of the disease will be checked.

REQUISITES OF REMEDIES.

An effective remedy in diphtheria should possess the following qualifications:

It must not injure, inflame or irritate the tissues.

It must destroy or retard the growth of the bacilli.

It must protect the surrounding tissues against the disease.

It should not interfere with nutrition or elimination.

It should counteract the constitutional effects of the disease.

LOCAL APPLICATION.

When diphtheria is accessible, local treatment is of the greatest importance in treating the poisonous membrane. To make these applications properly, the physician should have had experience in throat work, and should possess sufficient dexterity to make the applications with the least inconvenience to the patient.

Laryngologists find many adults who cannot at first allow throat examinations. With children it is even more difficult, and the operator must possess tact to get their confidence and coöperation. If one or more members of a family have succumbed to diphtheria and those remaining are impressed with the importance of treatment, the physician is less likely to meet resistance. In case of vigorous objection from the patient, the parents should be excluded from the room, the child placed in the intubation position and local application made. Such extreme measures may not be required many times. The child learning that no suffering is occasioned by the application, will prefer to have it made without resistance.

When the disease is inaccessible, and much progress has been made before beginning local applications, an exhausting struggle should be avoided. The danger from heart failure and loss of strength will do more harm than the application can do good. In such a case, the physician must rely upon a mode of treatment which may be applied with a minimum loss of vitality to the patient.

Local applications, when possible to make them, should be made often and thoroughly, as more good can be accomplished by this than by any other means, although other treatment must not be neglected.

TRAINED NURSES.

The importance of a trained nurse in diphtheria has not been properly estimated. The care of this disease is most difficult as well as dangerous, and it frequently gets beyond control before inexperienced persons learn how to properly apply the remedies.

The spread of the disease downward is the most dreaded complication. The best remedy known at present in this case is sublimation of calomel, but it must be used in the first stages to be of any benefit. The vapor passing along the respiratory tract comes in contact with the constricted portion and destroys the germs which are on the surface; the benefit is lost if they have already penetrated the tissues.

A trained nurse is familiar with the symptoms which indicate the downward spread of the disease and can apply the remedy in time to check it; while with unskilled attendants, this important point may have passed before the next call of the physician.

Preserving the vitality by administration of proper nourishment is also of great importance. Remedies and food must be given without reference to the wishes of the patient and this is better done by the skilled nurse than by an indulgent parent.

It does not conserve to the peace of mind of the patient to have the parent paralyzed with fear, attempting to perform the duties of nurse. The child, with its quick intuition, is cognizant of the fear and becomes frightened. Remedies are not properly given; the physician's instructions are only partially carried out, sleep is banished and food rejected. A trained nurse inspires confidence, gives food and medicine properly, and is familiar with every phase of the disease.

Diphtheria is not admitted in general hospitals, and if nurses acquire this special training, it must be done under the specialist. The best result must necessarily follow if a nurse works with a physician under whom she received her training in the care of diphtheria.

All trained nurses are not fitted for this kind of work. For the successful care of diphtheria, a nurse should have the following qualifications:

She should be at least twenty-five years of age.

She should possess tact in handling children.

She must not have a susceptible throat.

She should have been trained in the recognition and treatment of every phase of the disease, such as examining the throat, making applications, sublimation of calomel, extraction of intubation tube, administration of medicine and nourishment, and more important than all else, she must realize the necessity of isolation and disinfection.

THE SPECIALIST.

Diphtheria presents to the specialist an important though

uninviting field. This disease ranks third as a cause of mortality, and in spite of the scientific researches and discoveries of the last twenty years, the per cent of deaths per thousand has been steadily increasing.

Methods of treating this disease differ so widely that two physicians are seldom found treating it alike. This is largely due to lack of experience and the improper or inefficient application of remedies prescribed. A remedy and its proper application go together.

Treatment must vary according to age, and must also vary in different individuals at the same age. One child will take medicine, permit applications and throat sprays, while another child will fight till death against parents, nurse and doctor.

With these odds to combat, only that physician who can command every resource will stand any chance of success, and no one can appreciate this fact more than the general practitioner who attempts to handle an occasional case of diphtheria. The nature of the disease will not permit a doubtful diagnosis, and demands the skillful carrying out of a positive line of treatment in the beginning; experiment or hesitation invites fatality.

The advantage of the specialist over the general practitioner is no where so apparent as when considering the subject of personal contagion. Dr. John T. Sykes, of London, has recently published a report of a most careful and painstaking investigation of the cause for the increase of diphtheria in London during the past twenty years, and he concludes that the relationship of diphtheria to unsanitary conditions is overwhelmed by the influence of personal infection.

In the busy routine of the general practitioner, it is often inconvenient and almost impossible for him to properly protect himself and avoid becoming a medium for transmitting the disease. Physicians almost daily go from cases of diphtheria to their other patients, in whatever order they may come, without change of clothing or other precautions, except to keep as far as possible from the diphtheria patient. Such treatment is unjust to the patient, the public and the doctor. The patient should have the most efficient personal skill of the physician; the public should be protected, and the doctor should do his best for the patient or relinquish the case.

It is entirely different with a physician who makes the care of this disease a specialty. He is a constant witness of the ravages of the disease; no danger is overlooked. Knowing that continual

contact with the disease increases his own personal danger, he adopts a line of conduct which will insure his safety as well as that of the public.

Semmelweis taught us that the careless obstetrician may carry the death certificate of his patient under his finger nails. It is just as true that the Klebs-Löffler bacillus will repose as comfortably on the clothing of the family physician as the dress of the servant. A physician may think that because his own children do not contract the disease, he does not carry it. His children may not have susceptible throats and thus escape; while a child with inflamed tonsils who sat next him in the street car, may have contracted diphtheria and died.

Upon strict isolation and disinfection may depend the lives of the children of a family as well as the safety of entire neighborhoods, and the doctor who ignores or neglects these requirements is a menace to the community. This lack of attention to details may be attributable to the fact that the general practitioner who has not had a large experience in the treatment of diphtheria, does not thoroughly comprehend its serious significance.

The specialist in diphtheria, as in the case of nurses, should be equipped with certain qualifications which are indispensable to his success. A healthy throat; well tested remedies; skill and judgment to apply them; no fear of the disease; confidence in himself and his diagnosis; unswerving in his requirements for isolation and disinfection. With trained assistants and a wide experience to draw from, the physician thus equipped should be able to lessen the death rate of diphtheria materially in the future.

4334 ELLIS AVENUE.

CLINICAL REPORTS.

By ARTHUR R. EDWARDS, A. M., M. D.

PHYSICIAN TO COOK COUNTY HOSPITAL ; DEMONSTRATOR OF PATHOLOGY, NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

1. CASE OF TYPHOID FEVER, ACUTE PARENCHYMATOUS NEPHRITIS, PERICARDITIS, PERIPHERAL NEURITIS, DEATH FROM CHANGES IN THE PNEUMO-GASTRIC NERVE, AUTOPSY.

The patient, a Hollander, twenty-five years of age, was under our observation in the Cook County Hospital Medical wards for thirty-one days.

Personal history. The patient is single ; a teamster ; drinks beer, smokes, uses coffee ; gonorrhea four years ago. The family history is negative except that his father died of consumption. Beyond the diseases of childhood he has never been ill.

Present illness. Has been feeling poorly for three weeks ; bowels irregular ; pains in head and back ; sore throat ; otherwise symptoms very indefinite.

Physical examination. Patient well nourished ; eyes and ears negative ; face flushed but otherwise negative ; tongue heavily coated with thick white-yellow fur ; thorax, heart negative ; lungs negative save for few moist râles posteriorly ; abdomen negative, except for spleen, which is enlarged to the seventh rib in mid-axilla ; pulse on admission was 88 ; temperature, 102.6° ; respiration, 24. Typhoid orders were given and salol with tr. iodine administered.

Note five days after entrance. Spleen rises to the lower border of the sixth rib in the median axillary line and is palpable ; heart negative ; lungs, occasional squeaking râles posteriorly ; slight myodema ; no eruption ; mental condition clear ; bowels confined ; pulse never rises above 96, nor the temperature above 102° ; respiration, 24 is the maximum.

Note seven days after entrance. Slight epistaxis ; temperature, 99° – 100° .

Note nine days after entrance. Tongue still heavily coated ; typical typhoid temperature curve ; breath typhoidal ; spleen remains large and palpable ; enemata still required.

Twelfth day. Cannot extend hands readily ; slight conjunctivitis, for which boric acid solution was ordered t. i. d. Patient states that he has a numb feeling in the hands and forearms, but no

actual pain nor tenderness; examination negative; mental condition fairly clear.

Fourteenth day. Hands cannot be extended upon forearms. There is a moderate degree of wrist drop; slight paresthesia in forearms; absolutely no pain nor tenderness over the nerve trunks; cannot flex feet upon legs; except for the foot drop, examination of legs is negative; no pain nor tenderness in legs; sensation normal; no hyperesthesia; temperature seldom above 99° ; pulse rate averages 100.

Seventeenth day. Good appetite; given soft egg; tongue almost clean; cannot use forearms nor legs, except for a very slight degree of pro—and supination of forearms and sole motion in the legs is due to rotation of the thighs; can flex thighs upon the abdomen to a slight degree when rolled upon his side but flexion is impossible in the dorsal decubitus; in the hip joints rotation alone is preserved; motion in the arms is nil except a minimal degree of flexion; paralysis is unattended by any spasticity; shoulders moved by trapezii; motion in face and neck unimpaired; reflexes in extremities abolished; cremasteric reflex present.

Eighteenth day. A nodose erythema appears, symmetrically disposed on the dorsal aspect of both hands and wrists; abdominal and thoracic muscles not involved.

Nineteenth day. Temperature remains normal; urine negative; egg and toast given A. M. and P. M.; movement in the shoulders and arms improved; examination of pharynx and larynx negative; vesical function intact; diarrhea; complains of inability to swallow.

Twenty-fifth day. Bowel movements involuntary; light diet ordered; edema about ankles; urine yellow, acid 1030, considerable albumin; microscopically, many hemacytes and leucocytes; granular, epithelial and hyaline casts; renal epithelium. Strictly milk diet ordered; eruption persists upon the wrists but has disappeared from the hands; the extremities show marked atrophy; temperature rises from normal to 101.2° ; bowels still move involuntarily, although the mind is perfectly lucid; no dyspnea.

Twenty-eighth day. Temperature 104.2° , reduced by sponging to 103° ; considerable coughing and expectoration; dullness over lower lobes of lungs, posteriorly; pulse 130; infusion of digitalis, acetate of potash and Rochelle salts were ordered. There is no further note except that the pulse rate became each day higher, the maximum count being 144.

Thirty-first day. Patient died very suddenly and quietly at midnight.

The autopsy, made forty hours after death, confirmed the clinical diagnosis of typhoid, acute nephritis and multiple neuritis. The pericarditis was not recognized.

Rigor mortis well marked; livores marked over dependent parts; pupils equal; pericardium contains eight ounces of a clear serous fluid; surface roughened and covered with white shreds of adherent fibrin; heart cavities contain a moderate amount of fluid blood. All valves competent, slight nodular thickening of the free edges of the mitral cups. Mitral valve admits 3, and tricuspid 4, fingers. Left ventricle is 8 cm. long and 12 mm. thick; right ventricle measures 7 cm. in length and its wall 3 mm. thick. Foramen ovale is patent to the probe, although the closing membranes overlap, occluding the orifice. Respiratory mucous membranes negative; pleurae, no adhesions nor exudate.

Lungs negative except the findings of hypostatic pneumonia in both lower lobes.

Peritoneum negative, marked swelling of mesenteric glands; gastro-intestinal tube negative except for changes in small intestines; in the lower end of the ileum, Peyer's patches were pigmented and further up from the ileo-cecal valve the patches were much enlarged; the Peyer's plaques were in places necrosed, but the ulcers were nowhere deep; perihepatic adhesions to the diaphragm; liver negative and measuring 35x23x16x8 cm. Gall bladder empty; gall duct patent; kidneys, left measures 14x9x4 cm., right, measures 14x7x4 cm.; capsule peels readily, cortical markings are not distinct; cortex is to medulla as one to one; kidneys friable; cortex, intense reddish color; medulla of a decidedly yellow color; Malpighian bodies very distinct as yellow nodules; ureter, bladder and pelvis of kidney are negative; pancreas measures 15 cm., negative on section; spleen 15x12x4 cm., universal perisplenic adhesions, negative on section; scalp and skull negative; membranes of head negative; brain negative; small amount of fluid in the lateral ventricles. The nervous system otherwise negative except for the following microscopic changes in the pneumogastric and anterior crural nerves.

Sections made of these nerves revealed an almost complete destruction of the proper nerve structure with a comparatively slight round cell infiltration of the interstitial connective tissue. The nerve parenchyma was blurred, neither the axis cylinders nor the myelin sheaths being clearly distinguishable. The nerve interstitium was relatively free.

REMARKS. The infectious diseases, and foremost in this group

typhoid fever are very frequent causes of multiple neuritis and yet it is interesting to note that Hoelscher¹, in recording the pathological findings of 2,000 fatal cases of typhoid fever, did not find an instance of polyneuritis. The almost exclusively motor and trophic involvement is noticeable. There was no pain nor tenderness over the nerve trunks; sensation was normal; the sole sensory symptoms, paresthesia and possibly the rectal incontinence, stand in contrast to the many motor symptoms, abolished tendon reflexors, paralyses, dysphagia, tachycardia and those of trophic origin, the erythema and muscular atrophy. The preservation of vesical control with fecal incontinence constitutes a unique combination. Pathologically, the neural changes were degenerative rather than inflammatory, as evidenced by the extensive parenchymatous involvement as compared with the slight interstitial infiltration which was probably purely secondary.

2. CASE OF LEUKEMIA, MIXED TYPE. EXTENSIVE HEMORRHAGES INTO SUBCUTANEOUS TISSUES OF THORAX. BLOOD DISSOLUTION.

History. Irishman, aged thirty-five, single, laborer, with negative family history. Has never been ill since childhood, always very robust and muscular; uses tobacco, beer, whiskey, and denies venereal or malarial history. Resident of city for three years. Health has been poorer since he sustained a severe blow in his right side, a year ago. During the last three months he has experienced weakness and mental depression; for the same period there has been a tumor in the left side; a tumor in the left groin appeared at the same time, but disappeared; eyesight impaired during past two months; a week ago awoke with headache and vertigo followed by nausea, vomiting, constipation, pains in back and extremities; appetite fair; epistaxis just prior to admission; nocturnal micturition for several years; has been deaf for years.

Examination. Skin warm, dry, *tâche cerebrale*, marked myodema, slight edema over tibiae; nutrition fairly good, the somewhat wasted extremities contrasting with the wide thorax and prominent abdomen; pupils equal, react to light and accommodation; conjunctivae pale. Ophthalmoscopic examination: retinæ pale, the right is the seat of four fresh hemorrhages, and minute ecchymoses occur in both; in both are white deposits, in places following the vessels, and again forming larger isolated nodules; ears

¹Müncher Medicinische Wochenschrift, January, 1891.

negative; tongue slightly coated with white fur; protruded in median line; lips dry; oral breathing; mental condition good; cheeks sunken; mucous membrane of mouth normal; nose filled with blood clots; urine clear, acid 1.015, trace of albumin, negative microscopically; lower thoracic aperture very wide; the lungs negative; normal outlines except that heart, liver and spleen stand higher than usual; respiratory excursion normal, breathing normal. Heart pushed up to third rib; apex beat in third and fourth intercostal spaces, indistinctly seen and felt near nipple; external lymph glands moderately enlarged; skull, spine, sternum, ribs, clavical, pelvis and long bones negative, external genitalia negative, no cicatrices; patellar reflexes are absent; no ankle clonus; otherwise examination of central and peripheral nervous system negative. Abdomen very much distended; liver, top of fifth rib in parasternal line, of sixth in mammary line, of eighth rib in posterior axillary line, merging with cardiac and splenic dullness toward the left and reaching a line drawn transversely through the navel, where its edge is plainly palpable as a plump, firm even border. At that point where the hepatic and splenic dullnesses met, the edge of the spleen can be distinctly felt. The spleen extends to the sixth rib in the anterior axillary line, and reaches anteriorly to a point half way between the left parasternal and mammary lines. Downward it passes the umbilicus but about three inches, and disappears behind the crest of the ilium. Its posterior border reaches to midway between the anterior superior and posterior superior iliac spines, and its hard, sharp border is palpable between the ilium and the lower ribs. The notch is palpable anteriorly as is its entire anterior border; no abdominal tenderness nor tympany. The blood examination demonstrated 4,500,000 hemocytes to the cubic mm., and 300,000 leucocytes, a ratio of 15:1. The hemoglobinometer read 60 per cent; staining with the Ehrlich-Biondi method and with eosin and hematoxylin gave the usual findings; myelocytes with scant protoplasm and very large pale nuclei containing both neutrophile and eosinophile granulations; large and small lymphocytes, transitorial and polynuclear forms with a few nucleated red blood corpuscles in which mytoses were observed. The temperature was constantly 99.4 to 100.8°; the pulse rate 92, respiration 24. Once only did the temperature rise to 101.8°. The bowels were most irregular, now requiring both drastics and colonic flushing, and again averaging six movements a day. During the twenty-nine days of observation upon this case there was repeated severe

epistaxis which several times required tamponing the nares. The abdominal dullness was in no wise altered by the cathartics or diarrhea.

Fowler's solution, minims v., was administered as soon as the diagnosis was made and continued in doses increased by one minim each day till twelve drops were given, and then by doses decreasing by one minim each day until the original dose was reached.

On the thirteenth day severe diarrhea and vomiting were observed. There were several hard circumscribed infiltrations upon the body which were not painful, tender, red nor fluctuating. They disappeared after a few days.

Eighteenth day. Beneath the right scapula a swelling appeared which extended into the right interscapular region, over the latissimus into the axilla. The swelling was firm, nonfluctuating, not red, not tender nor painful, and dull on percussion. Auscultation was negative and aspiration yielded somewhat altered blood. A day later the patient lost considerable blood from the gums, which oozed constantly. He became sleepless, very irritable and often delirious. A large hematoma appeared in the epigastrium. The hematoma in the back rapidly spread downward and into the axilla, extending under the right pectoralis and fusing below with the epigastric hematoma. Many subcutaneous eccymoses appeared on the trunk. The patient became pallid and maniacal. New hematomata formed under right trapezius, and two in the right lumbar region. Several bullae appeared on the back with hemorrhagic contents and hemorrhagic peripherae. Delirium persisted. The hematomata merged into one another and the skin through tension became necrotic, discharging a hemorrhagic serum. The patient died with gradually increasing anasarca and with development of no new symptoms.

Autopsy on the second day. Pupils equal; marked rigor; marked emaciation. On the right side of the thorax an immense hematoma reaching from the epigastrium nearly to the clavicle, from the sternum to the spine, and from the spine of the scapula to below the lower ribs. It dissected through the subcutaneous connective tissue, extending beneath the pectoralis, latissimus, and scapular, and communicated with hematomata in the substance of these muscles. The contents was in part dark fluid blood, debris and perfectly white clot. The pericardium and peritoneum negative as was the pleura. Serous cavities contained a small amount of sero-sanguineous fluid. Heart, left ventricle 9 cm. by 15 mm.;

right 8 cm. by 6 mm. Endocardium negative, except for small atheromatous plaques about mitral, aortic and pulmonary valves. Aorta negative. Myocardium quite pale but firm. Cavities contained clots entirely yellow, soft, readily yielding to pressure of finger. Aortic and pulmonary valves competent. Mitral admits three and tricuspid four fingers. Along the coronary trunks under the pericardium were numerous small white circumscribed deposits which microscopically were small lymphomata. Lungs were negative except for an area in left lower lobe, which did not float nor crepitate, but was solid to touch and sank in water, hypostasis. Mesenteric glands considerably enlarged, softened, yellow-white in color. Spleen measured 23x13x7 cm. Capsule thickened over entire surface and the seat of many firm adhesions. Spleen very firm, and on section revealed numerous anemic infarcts. The connective tissue trabeculae were macro- and microscopically greatly increased, and there was hyperplasia of the pulp in which the microscope showed numerous small hemorrhages and minute necroses, Malpighian corpuscles enlarged, pale, reddish gray color, weight 1,500 gms. Liver 33x25x16x9x5, weight 2,550 gm.; circumscribed white areas on surface beneath capsule. On cut sections the blood vessels appeared large. The organ was uniformly pale and lobules not clearly differentiated. On microscopic examination there was marked atrophy and pigmentation of the hepatic cells and about the blood vessels a massive collection of leucocytes, causing pressure atrophy of the liver cells. Pancreas 22x6 cm., negative. The gastro-intestinal canal was negative, except for a few moderately enlarged Peyer's patches. Kidneys 15x8x5 cm., capsule peels readily; surface smooth; stellate veins dilated; here and there discrete white deposits. On section the organ presented a variegated appearance, the cortical markings being in many places blurred and showing the white deposits seen elsewhere. Microscopically, there were leucocytes about the blood vessels and glomeruli; epithelium fatty; ureters, bladder and genitalia negative. Central nervous system negative save for yellow clots in the cerebral sinuses. Bone marrow pyoid, entirely yellow, quite fluid, with no evidence of the normal, fatty red appearance.

REMARKS. The case is of interest on account of the evidences of blood dissolution, which were either limited to the exterior of the body or were accessible to physical examination, e. g. retina, gums, nose or chest wall. Neither the clinical nor the pathological findings demonstrated internal hemorrhages.

The enormous hemorrhages in the chest wall were remarkable

for their size and precipitated the fatal issue, for their occurrence was followed by grave cerebral symptoms, sudden anemia and an immediate acute clinical course.

3. CASE OF RUPTURE OF THE UPPER DUODENUM; CLINICAL DIAGNOSIS LYING BETWEEN CONTUSION AND VISCERAL RUPTURE; LOCALIZATION AT OPERATION DIFFICULT ON ACCOUNT OF GAS ESCAPING INTO THE LESSER PERITONEAL CAVITY.

A newsboy, aged fifteen, states that two hours prior to his admission at midnight, he was thrown from the step of a passenger car when the train was in full motion and fell upon his abdomen. His hands were outstretched and he fell upon his abdomen across a railroad tie. He suffered immediate severe abdominal pain and was carried to the hospital.

Examination. Pupils equal; face, ears, throat, nose, calvarium negative. No fractures nor external injuries other than a bruise upon the anterior aspect of the right thigh and another to the left of the umbilicus. Thoracic viscera negative. Costo-abdominal breathing. Liver dullness unaltered. Splenic dulness normal in outline. Abdominal wall retracted and of board-like rigidity. Abdominal palpation negative. Percussion gave a muffled tympanitic note, ascribable to tension in the parietes. Tenderness over the entire abdomen, but the patient refers the greatest pain and tenderness to the right inguinal region. The localization suggested the necessity of excluding the appendix, but rectal examination was negative. The anxious, pale face and blanched lips evidenced considerable shock. No internal hemorrhage nor free fluid in the abdominal cavity could be demonstrated. Both flanks were tympanitic. The pulse was 80, somewhat small and weak. Temperature and respiration normal. Vomits three times after admission and the second vomitus was deeply stained by fresh blood. On catheterization the urine was clear. The extremities were cold. The knees were often drawn up, but again the extremities were extended. Auscultation of the abdomen was negative. No fecal passage. During the night two enemas were administered, the second being successful. A liquid, viscid, brown passage of three ounces followed. It contained no blood. The patient was very restless, suffered intense diffuse abdominal pain, especially in the right side. Respiration was irregular but the pulse was strong. Seven minims of Majendie's solution induced sleep. The knees were drawn up, even during sleep, and the patient lay constantly

upon his left side with the head flexed upon the thorax. 7:30 A. M. General condition improved. Hepatic and splenic dullness were maintained, demonstrated repeatedly by careful examination. Respiratory excursion in both organs persisted, excluding perihepatic and perisplenic adhesions to the abdominal wall, the presence of which in an analogous case of intestinal perforation prevented the interposition of gas between the organs and the abdominal wall and by the persistence of hepatic dullness rendered uncertain the otherwise probable perforation. The abdomen was resistant and retracted. Patient's expression and subjective state were much better, but constant observance of his general condition was maintained, as with the uncertain diagnosis laparotomy was not yet excluded. Pulse 98. Respiration 32. Temperature 104°.

At 10 A. M. the patient suddenly grew worse. The abdomen became tympanitic, the walls tense compared with the retraction of an hour before, the liver dullness was absent anteriorly; the spleen could not be outlined. The pulse ran to 110, and respiration to 40, and the face was pinched in collapse. Immediate laparotomy was performed with the usual antiseptic and aseptic precautions and every measure to prevent collapse. The room was made very warm; the chest and extremities were wadded with cotton, and all was ready for abdominal section so that the minimum of chloroform might be administered. A median incision was made from the umbilicus to the ensiform which was later enlarged downward and supplemented by an additional transverse incision toward the spleen. Incising the peritoneum, a quantity of almost perfectly clear bile-stained fluid with gas escaped. The colon and small intestine were inflated, per rectum, with hydrogen gas, but without demonstration of rupture. Locating the ileo-cecal valve, the small intestines were carefully examined with negative results. The gut was in places rough and granular. A large artery in the omentum was found completely severed and retracted but no recent or old hemorrhage was discovered. To localize the perforation which by exclusion seemed to be in the stomach, the stomach tube was introduced, and by it the organ inflated with hydryogen gas. The stomach retained the gas until much distended, when bubbles of air escaped from the abdomen but were too few to be localized.

On inspection the anterior wall of the stomach appeared intact and the lesser peritoneal cavity being widely exposed, much gas escaped. This was accepted as demonstration that the stomach had ruptured into the peritoneal cavity. Suspicion was especially

directed to the cardia whence the most gas escaped. Search was in vain. The liver, spleen and gall bladder were intact. On account of the bilious character of the fluid free in the abdominal cavity, the duodenum was again examined. After protracted manipulation, a ragged rupture one and a half inches long with contused everted mucous membrane, was found in the first part of the duodenum where it is closely bound down. It was sutured with a single row of interrupted Lembert sutures. No more gas escaped. Drainage and hasty suture as the patient was rapidly failing. Death, twenty minutes after removal from operating table.

COMMENT. The differential diagnosis in the last case was the prime consideration. The symptoms of shock argued as much for contusion as for visceral rupture. Vomiting is as constant a symptom in shock as in rupture of the stomach or intestine. Hematemesis is no criterion of rupture, since it also occurs in contusion of the stomach. The severity of the symptoms conveyed no diagnostic significance, for rapid death may result from shock and the autopsy give negative findings. If a case of severe contusion be operated upon by mistake, the combined shock is apt to prove fatal. An early differential diagnosis is almost always impossible. Severe pain is said to weigh more for rupture than for contusion. Tympany occurs late in rupture, as was well illustrated in this present case, while it appears early in contusion from paralysis of the gut.

Persistence or increase in the vomiting is characteristic of rupture, but vomiting ceased early in the case related. A full stomach or loaded intestine increases their liability to rupture. This patient had eaten nothing for eight hours, and then only a light lunch. Bloody stools are rare in rupture. As to the location of the rupture, the duodenum is from its anatomical situation fairly secure and rupture usually occurs at its juncture with the jejunum, a point where fixed intestine joins more movable gut. A higher rupture of the duodenum is much rarer.

The presence of gas in the lesser peritoneal cavity is interesting. The location of the duodenal rupture was such that the hydrogen gas escaped more readily into the lesser, than into the general peritoneal cavity, thus embarrassing localization of the lesion.

Finally, distention of the stomach by gas injected through the stomach tube serves to detect rupture in the stomach, at the time of operation or the upper parts of the small intestines, when inflation per rectum would give negative results.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH.
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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Society Proceedings.

THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held July 16, 1894.

In the absence of the President, Dr. J. H. Stowell was called to the chair.

The committee on membership reported favorably on the applications of Drs. Wm. S. Magill and L. F. Woodruff, and on motion the Secretary cast the ballot of the Society for their election.

The application of Dr. J. W. Walker was read and referred to the committee on membership.

Dr. CARL BECK read a paper on

TREATMENT OF INOPERABLE SARCOMATA AND CARCINOMATA WITH
CULTURES OF ERYSIPELAS AND TOXINES WITH REPORT OF CASES.

See August RCORDER.

Dr. A. GEHRMANN: I am more or less interested in this subject because I have had to do with the preparation of some of the material used, the toxins. These have varied much in character during the time that they have been used for the treatment of inoperable tumors. No success of any value was secured with the toxins until it was possible to prepare them without the use of heat. At first the toxins were sterilized at a low temperature, that is bringing bouillon cultures up to 70 or 80 degrees for an hour

or so on successive days. But when it became possible to use porcelain and to filter cultures more success was attained, because then the dosage could be more definitely arranged and one knew exactly what he was injecting. At first simply the erysipelas in bouillon culture extracted through porcelain, was injected, but after a time it was discovered in an experimental way, that by injecting filtrates produced by the bacillus prodigiosa, in addition to those of erysipelas, better results were obtained. At first these were injected separately, and later simultaneously. After a time the erysipelas was grown in bouillon, then the prodigiosa was planted in the same culture, the two grown together for a time, then both filtered and used. At present the toxic products are prepared separately; in the first place, there is less waste, then the amount of each toxine in the final preparation is more definitely decided.

In one of the last lots of material used by Dr. Coley in New York, the preparation was simply the heated bouillon culture, and he reports that the results obtained with it were very good, and he was rather inclined to try it still further, but I prefer the filtrates to the bouillon sterilized cultures. The cultures of the filtrates as I prefer them, are the ordinary fifty per cent beef tea peptone bouillon with erysipelas, grown for four weeks at a temperature of about thirty, Centigrade. It seems that this temperature gives a better growth than the ordinary brood temperature. The prodigiosus is grown in similar bouillon one week, then they are both filtered through porcelain; the filter used is the ordinary Kitesato filter, a small tube within a receiver, below a receptacle for the filtrate. The filtration is carried out under the filter pump producing a vacuum, the two filtrates are then mixed in the proportion of four or five parts of erysipelas to one of the bacillus prodigiosis. But it seems that each case should be treated entirely for itself and the preparation of the material used in that particular case is to be determined largely by experiment, and if the filtrate of a certain composition does not seem to act favorably another one should be tried.

The injections in some of Dr. Becks' cases when I first saw them seemed too small to give decided results. It seems to me the injection should always be small when it is commenced, two, three or four minims, but it should be rapidly increased until a decided reaction is obtained, that is when the temperature goes up to 103°. As soon as a decided reaction is obtained, if not with one kind of filtrate, another of a different composition should be tried, then the injection should continue at about that point, and

should be intermitted according to the degree the patient will stand the injections and the slight depression which always results.

As far as the results obtained are concerned, of course they vary, and are not always satisfactory. Personally I have had to do with three cases of sarcoma and four cases of carcinoma. One case was diagnosed by Dr. Andrews as carcinoma of the breast, which was not operated upon and was growing very rapidly. The case was in the practice of Dr. Abel, and gave the most gratifying results of any of the cases I have observed. This patient has been treated with two injections a week, of fifteen minims each, for about two months. The tumor has decreased in size about two-thirds, and is apparently growing smaller. As in this case, I think in every case where the tumor is decreasing in size no attempt should be made to increase the dosage or to get a more decided reaction, but the case should be allowed to take a slow course, if it will. One thing of great importance in the treatment of these cases, as far as results are concerned, is the relief of pain. In all of the cases I have found that the pain from the carcinoma was very decidedly lessened and the patient felt much more comfortable during treatment than when it was intermitted or discontinued.

Dr. ROBERT TILLEY: I have been exceedingly interested in what we have heard to-night, inasmuch as I have a patient under observation at present, on whom I am using the toxins of erysipelas and the bacillus prodigiosus together. So much on this subject is new, however, that I beg to say two or three things almost by way of interrogation. A few days ago I read an extract from a paper by Bonaduce, in which he makes a distinction between the toxins and antitoxines. This Frenchman had been making experiments with reference to the toxins and antitoxines of syphilis. He reported three children that were unquestionably afflicted with hereditary syphilis, and taking a small quantity of blood from each he placed it in a cool chamber and at the expiration of twenty-four hours this was diluted with a certain quantity of distilled water, then on the principle that the toxins are destroyed at a lower temperature than the antitoxines, it was raised to a temperature of one hundred, Centigrade and filtered. The resulting liquor was used as a hypodermic injection into a man infected with unquestionable chancre, and enlarged glands in the groin, the injection being made once every other day, extending over a period of twenty-four days. According to the statement the enlarged glands disappeared completely and after the lapse of eight months no

further signs of syphilis had appeared. So much for the toxins and antitoxines.

The interesting feature about the case I have under observation is the enormous injections that we have used, apparently without any effect. I saw him for the first time about six weeks ago at St. Luke's, at that time there was a tumor of the orbital region which I diagnosed as myxo-sarcoma. The eye was slightly protruding and was divergent at an angle of about forty-five degrees, the middle turbinated body was considerably enlarged and pressed forward. Three weeks afterward he came into the dispensary and at this time the eye had been removed. When I first saw him I think the sight was perfect, although sight was of so little importance in comparison to the condition of the tumor that I did not enquire about it. However by pressure of the tumor on the optic nerve the sight was destroyed. He went to the Eye and Ear Infirmary and they removed the eyeball; we began the use of the toxins the next day. The tumor then as it protruded from the orbit might have been said to be about the size of an orange. The toxins were obtained from the same source where Dr. L. L. McArthur had previously obtained some and had had good results, from H. M. Buxton, who has now gone to Europe. We began with eight or ten minims, but without any effect whatever that I could see, and rapidly increased to thirty. I have had no experience and I gave it three times a day, but it did not have any effect apparently, the temperature was about 100° to 101° when he came to the hospital, but did not seem to follow any regular order. At any rate, after three days the temperature began to subside and it subsided to such an extent that it became almost a straight line at a given time a day, but descended a little below normal once in four days. It remained in this condition for nearly two weeks and I began to despair. However, the tumor did not make any progress at all in size, but there was this feature about it, that while the harder parts seemed to have increased somewhat above the orbit the softer parts seemed to diminish. I was advised to use the toxins of erysipelas and prodigiosus cultivated together, as I understand it, without filtering. The interne told me that on Saturday he gave one injection of eight minims and the next day ten minims and to-day ten minims, and about half an hour afterward the first real indication we have had of the influence of the injections appeared; he was then suffering with a violent chill.

Dr. CARL BECK, in closing the discussion, said: All of the

patients that were treated showed this one symptom, that the pain decreased; at least they did not complain, but probably it was suggestion. I would not draw any certain conclusion in regard to the pain because the pain is something so variable, and besides it is necessary to exclude the suggestion. If you tell patients that they won't feel pain, they won't; and we can even operate large carcinoma without anesthetics, by telling patients they won't feel pain.

Dr. J. J. LARKIN exhibited his

IMPROVED SPLINT FOR COLLES' FRACTURE.

See August RECORDER.

Dr. A. D. BEVAN: I must take issue with the statement that the all-important factor in the production and maintenance of the peculiar deformity of Colles' fracture is muscular contraction. I have disproved this often repeated statement in my dissecting room. Opportunities for dissection of accidental Colles' fractures have been infrequent; in my reading I have not been able to find reports of more than half a dozen cases.

The clinical cases of Colles' fracture are almost invariably produced by overextension of the hand upon the forearm. The fracture usually occurs about three-fourths of an inch above the articular surface of the radius. It has been my custom for some years to demonstrate to my classes the mechanism and lesion of Colles' fracture upon the cadaver.

By fixing firmly the forearm of a cadaver in a perpendicular position on a low table, a man of good muscular development can by overextension of the hand upon the forearm, produce a typical Colles' fracture with characteristic deformity and muscular contraction certainly does not play an important part in cases thus produced.

Upon dissection of these fractures I have without exception found that the fracture occurred at the junction of the compact with the cancellous tissue at the lower end of the radius, further that for the extent of half an inch or more the cancellous tissue is pulverized, shortening the radius by the length of the bone thus pulverized. The lower fragment is pushed backward by the force producing the injury, the periosteum is more or less extensively torn. The lower end of the ulna which is not fractured, as a rule, becomes more prominent from this shortening of the radius, and if the force has been sufficient may become dislocated from its indirect articulation with the carpal bones. The deformity of Colles' fracture, therefore, is the result of the vulnerating force and not

to any large degree dependent upon muscular contraction. This is further shown by the fact that in fractures which are not accompanied by crushing of the cancellous tissue there is very little deformity and normal position can be easily maintained. The amount of deformity and difficulty of retaining the fragments in normal position increases with the extent of cancellous tissue pulverized.

Extension which is so ingeniously produced by Dr. Larkin's device will often reduce and aid materially in maintaining the reduction of the fracture. I am inclined to the opinion, however, that extension finds its best field of usefulness as a temporary means of maintaining reduction during the application and hardening of a plaster of Paris splint. The plaster of Paris should be applied directly to the skin after this has been cleaned, shaved and covered with vaseline. In this way the contour of the parts are not disguised as they are by the cotton or bandage usually employed to envelope the limb before the application of the plaster.

The first step in the treatment should be the perfect reduction of the fracture. Then a thin, even plaster splint should be applied and the fragments maintained in normal position by extension and pressure until the plaster has hardened. The splint should extend from the metacarpo-phalangeal joints to the bend of the elbow. It is very rare that it is necessary to split open a splint thus applied to relieve pressure. As a rule the splint should be worn from twenty to twenty-five days. I have obtained the most gratifying results by this method, and with far greater comfort to the patient than in any other method I have used or have seen employed.

I must again take issue with Dr. Larkin when he criticises himself so severely for a bad result in Colles' fracture. Of course I do not know the exact facts in the particular case which he cites, but there are undoubtedly cases of Colles' fracture in which it is impossible to obtain a perfect limb no matter what appliance is used. In such cases the amount of injury done, the changes in the parts resulting from normal repair, such as the formation of new bone and connective tissue in undesirable amount and position result in loss of function and marked deformity.

I regard Dr. Larkin's device as very valuable and practical, and shall take the opportunity of giving it a trial.

Dr. J. C. HOAG: I would ask Dr. Larkin why, if he is so anxious to obtain extension, he does not have a coiled spring

between the two sections of the splint so as to maintain a constant and definite amount of extension ?

Dr. J. J. LARKIN, in closing the discussion, said: In answer to Dr. Hoag's question, it is a mere matter of taste what kind of joint is used, the main point to be emphasized is the fact of continuous extension to overcome muscular contraction. I am more than half inclined to disagree with my friend, Dr. Bevan, in reference to the importance of muscular contraction. Every muscle that is injured will contract and stay contracted more or less of the time during convalescence ; there is not a muscle at the wrist but will contribute to deformity in a fracture of the lower third of the arm, it matters not what its direction, whether complete or partial, whether of one or both bones. I do not refer particularly to Colles' fracture because this splint is useful for any kind of fracture in the forearm. The injunction of Dr. C. T. Parks in reference to the treatment of fractures is, reduce and retain; and it is to be understood, retain with as slight damage as possible. I think much injury is done a limb by bandaging it in case of fracture.

Dr. ADOLPH GEHRMANN read a paper on

THE BACTERIOLOGIC DIAGNOSIS OF DIPHTHERIA,

with reference to its introduction by the Chicago Board of Health.

Dr. A. R. REYNOLDS: I have only to express the hope that the profession will take advantage of this opportunity, as a promise to do this work was one of the arguments used by the department to bring about the appropriation that established the laboratory as it is, and if we can show that it is of value in this direction it will aid us materially next spring in securing another appropriation and possibly extending the work.

Dr. W. F. WAUGH read a paper on

PSYCHIC SEQUENCES OF SEVERE TYPHOID FEVER.

Dr. RICHARD DEWEY: Dr. Clouston in the last edition of his work gives a list of 1,000 cases admitted to the Carlisle asylum in Scotland, out of which there were ten post-febrile cases, and out of the ten, one was a sequel of typhoid fever, the others were sequels of scarlet, smallpox and other fevers, and measles I think in one case. A study has also been given of twenty-three cases of that kind by Dr. Hurd, of Johns Hopkins Hospital, of which eleven were cases of insanity following typhoid fever. A number of such cases have also been reported by Stearns in his work on mental diseases. The insanity takes for the most part the form of

apprehensive delusions, delusions of fear of bodily harm, and in some cases there were also grandiose delusions, such as were present in the case reported by Dr. Waugh, delusions of wealth and exaltation.

The case Dr. Waugh mentions I recall as being under my care at the institution at Kankakee. When the patient was admitted a diagnosis was made of general paralysis. He presented many of the most characteristic symptoms; the grandiose delusions of wealth and power were very marked, but gradually disappeared. There were also inequalities of the pupils, fibrillary tremors and sudden flushings of the face often met with in that form of disease, although never any epileptiform seizure. The patient improved both mentally and physically beyond all expectation, and after three or four months of apparent perfect rationality it was deemed that his condition warranted his release from the institution and he returned to his friends. His subsequent history has been very graphically given by Dr. Waugh. In consideration of the result of the case one might naturally inquire whether the manifestation of psychic disturbance following typhoid fever at the age of sixteen, which showed a decided mental change in this young man was not possibly of a paranoic nature, a degenerative brain disease and the history of the case taken as a whole to my mind rather justifies that interpretation, the paranoia being a sequel of the typhoid fever, a "post febrile paranoia," so to speak. The case in that respect might be considered as having scarcely a parallel. I do not know that another case has been reported, but I do not know why it should not be so. Insanity following fever is not essentially different from insanity developed independent of fever.

Dr. H. B. FAVIL: The history of such cases, which are rather unfamiliar I think, will lead to the conclusion that the mental symptoms following typhoid fever or other febrile conditions is probably incidental. In the case described by Dr. Waugh, and interpreted by Dr. Dewey as paranoic and degenerative, I doubt if there was any definite relation to the febril process from which we can deduce any valuable lesson.

Dr. W. H. Waugh, in closing the discussion, said: An ancestor of this young man was color blind and one aunt had been insane, so there was some heredity.

On motion, the society adjourned, subject to the call of the executive committee.

JUNIUS C. HOAG,
Secretary.

THE CHICAGO PATHOLOGICAL SOCIETY.

A regular meeting was held July 9, 1894, in the Laboratory building of Rush Medical College.

The meeting was called to order by President Hall.

The minutes of the two previous meetings were read and approved.

The Treasurer submitted a report showing a balance of \$237.37.

The chair asked that some action be taken by the society relative to delinquent members, some of whom were four years in arrears for dues.

Dr. W. CLARKE moved that the matter be referred to the executive committee with power to act. Carried.

In the absence of the regular censors the chair appointed as censors pro tem., Drs. Skeer, Clarke and Stehman, who reported favorably on the applications of Drs. Charles L. Webster, E. R. Le Count, Frank Montgomery, and D. D. Bishop. On motion of Dr. Murdock they were unanimously elected to membership.

The applications of Drs. E. F. Gavin, A. Dean Bevan, C. A. Parker, and I. W. Brown, were read and referred to the censors.

Dr. E. P. MURDOCK presented a

CASE OF INCIPIENT PHTHISIS TREATED BY OZONE.

I only report this case to bring forward what was said at a previous meeting on the treatment by ozone, not that the patient is cured, or we have any definite results, but the symptoms have been so markedly modified that I want to call the attention of the society to the matter. As I am experimenting extensively with this treatment, and believe that one man cannot do as well as many, I want to get the judgment of other members of the society on the treatment with ozone and get them to make some clinical observations. It is a new departure in some respects, because although the subject of antisepsis in medicine and surgery has received the attention of the profession for the last twenty years more than any other subject of the century, yet it is a fact that all of the antiseptics we have so far are either solids or liquids and we have not been able to use any of them in the air passages. With ozone, as we are able to produce it now, we can destroy germs without the least difficulty. The patient whom

I introduced to you to-night has been under treatment for six or eight months with the various medications used in insipient phthisis, but with little if any benefit; in fact he seemed to grow worse. He lost fourteen pounds in five months and suffered with a continuous fever, and during the last nine weeks has had nightsweats and a severe cough.

Upon examination a profuse supply of the bacteria of tuberculosis was found in the sputum. He has been under treatment with inhalations of ozone about three weeks. The most marked benefit is the decided increase in his appetite, he has gained three pounds in weight in fourteen days; the cough is almost entirely controlled, and the bacilli of tuberculosis have disappeared from the sputum. I have reason to believe, however, that if the treatment ceases we will find the bacilli again in a little while, because we only reach those found in the air passages and not those deposited in the tissue. He shows that he is still sick. The cough was very severe, it kept him awake at night and during the day he was unable to work; he could not walk up and down stairs without extreme exhaustion, but since beginning this treatment he is almost free from cough, his appetite has increased greatly, he has gained three pounds in weight and is able to walk briskly and travel a good deal. He has been out to Maywood and back to-day, and he is able to do some work; he feels vigorous and strong and this without the use of drugs.

I have some eight or nine cases undergoing this treatment. I treated my own child with it in as severe a case of whooping cough as I have witnessed in seventeen years' practice. The little fellow, fifteen months old, not only was not able to retain anything on the stomach, but he had epileptiform convulsions, fully thirty convulsions inside of four days, and after the first treatment by the inhalation of ozone he had no more, the cough was very much reduced, and within a week it was so much under control that I was able to cease treatment, notwithstanding the fact that the case had resisted all medication. I have treated some eighteen cases of whooping cough in all the different stages, and while I am not able to say that the duration of the disease was really shortened the paroxysms and pain were lessened, and we were able to nourish the patient without the least difficulty. There was no emaciation or loss of weight in any of the children, and the other symptoms were very markedly modified. I feel more encouraged over this treatment than anything I have known of, and I hope other members of the profession will make clinical observations so that there may be less

chance of error in the results than if these investigations were conducted entirely by one man. If the benefits of the ozone treatment are what I believe them to be, we have made a step forward in antiseptic applications to the air passages which has not been reached by any other form of treatment.

Dr. GEORGE A. SKINNER exhibited a

SPECIMEN OF ANENCEPHALIA.

In the obstetrical service at the County Hospital I was surprised one day by the birth of an anencephalous child after a protracted labor of nearly four days. After the pains became strong the membranes protruded through the vulva, and there seemed to be gallons of amniotic fluid. It was a female, and weighed one pound and fourteen ounces at birth. The placenta weighed nine ounces; the cord was twenty-four inches in length. The child appeared normal in every way except the head. It appears to be at about the eighth month. As to the etiology of these cases I have found little information, but I hope some one will tell us of recent investigations. The child lived nearly ten minutes after birth, although respiration was not apparent.

Dr. E. P. MURDOCK: The subject of teratology has attracted my attention for a good many years, and I have presented several specimens to this society. In all cases of which I have been able to obtain the history there was a large amount of amniotic fluid. This is a case of acrania, and does not differ from other monstrosities of the class to which it belongs. Monstrosities are of two kinds: failure of development, and excessive development. Monstrosities of failure of development always occur in the median line, there is an absence of the portion of the anatomy that belongs in the median line. The simplest form is the harelip, being exaggerated to the cleft palate or the double harelip, or even the absence of the entire maxillary bones, and I have seen it extend even to the vomer and ethmoid bone; and these cases are known as cyclops because of absence of the intermediary bones brings the eyes together into one, and in such case the soft part or protuberance that takes the place of the nose is above the eye. The absence of the sphenoid is less common, and yet I have seen a few cases of that character. In this case there is absence of the occiput, and with it the absence of brain tissue as well. Following this line of deficiency of development we may have absence of the spinous process in the vertebral column, or spina bifida; extending down to the genitals, we have the hermaphrodite. It sometimes

occurs in the heart. I have seen a few cases where there was absence of one ventricle; there were two auricles, and one ventricle, as is found in cold-blooded animals. I have never known of a case of acrania living more than five years. Usually they are delivered alive.

In the other class of monstrosities, the excessive development occurs in the extremities and the outer parts, an excessive hand or thumb or finger, and it may go so far as to be an extra limb. There is another class of monsters where there seems to be a deficiency in the development of multiple pregnancy, a double monstrosity. These may go all the way along the line from a simple tumor, which is a failure of the development of one in the multiple pregnancy to the complete double monster, such as Millie Christine, who has been on exhibition here many times. In the double monster there is this peculiarity always present no matter how faintly joined, as the Siamese twins simply by the side, and the Upham girl in the sixteenth century, joined at the back, the body cavities always communicate. This specimen is very interesting and I think there is in possession of the society at least two other specimens somewhat similar that I presented to it years ago. I gave attention to this subject as far back as 1869, when I was assistant to the elder Agassiz whom I accompanied to South America. I collected quite a number of monsters, both double and of deficient development. It is a peculiar fact that a certain class of deformities, either from failure of development or excessive development belong to certain kinds of animals.

Excessive development, or the production of an extra limb or head, or the double monster is more commonly found in the sheep family than in any other, while in the fowls, especially the domestic chicken, deficiency of development is more common than in any other class of animals. Another peculiar fact is that monstrosities are uncommon in what are known as pure families, the pure unmixed races of any kind; thus the wild birds that do not mix with different families of birds seldom have any monstrosities, but when they become mixed, or hybrids, monstrosities are more common among them.

Dr. C. A. PARKER exhibited specimens of ecchinoccus cysts in the spleen, kidney, brain and heart muscle, and read a paper on the subject.

Drs. E. R. LECOUNT and F. A. MCGREW reported two cases of Addison's disease with tuberculosis of the suprarenal bodies.

On motion, the society adjourned.

GEORGE H. WEAVER, Secretary.

Reviews.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, with especial reference to the application of remedial measures to disease, and their employment upon a rational basis. By HOFART AMORY HARE, M. D., B. Sc. Fourth edition, enlarged and thoroughly revised. Octavo, 740 pages. Cloth \$3.75. Philadelphia: Lea Brothers & Co. 1894.

The appearance of the fourth edition of Dr. Hare's work within so short a time is the only practical comment to be placed upon the work, the high scientific nature of which has been recognized everywhere. Part First is devoted to general therapeutic considerations, indications, contraindications, combinations of drugs, incompatibles, etc. Part Second takes up drugs descriptively in alphabetical order. Part Third takes up remedial measures other than drugs and foods for the sick. In Part Fourth diseases are taken up alphabetically, and their therapeutics briefly, pointedly and thoroughly set forth. There follows tables of doses, weights and measures, an index of drugs and remedial measures, an index of diseases and remedies. The work is well named practical therapeutics and we feel that many who have fallen into the way of therapeutic skepticism, by the perusal of these pages will again take up the medication of disease with renewed interest and benefit to their patients.

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the use of practitioners and students of medicine. By AUSTIN FLINT, M. D., LL. D. Seventh edition, revised by Frederick B. Henry, A. M., M. D. Octavo, 1,144 pages. Philadelphia: 1894, Lea Brothers & Co. Cloth \$5.

The name of Flint must ever be closely associated with clinical medicine and the early editions of this classical work mark the outposts of medical advance in their time. His graphic and wonderful word pictures of disease are scarcely equaled in the whole range of literature and must ever remain of value as long as disease exists. It is perhaps of doubtful utility to produce new editions of his work because the changes, omissions and interpolations necessitated by the advance of medicine ruin a classic without giving a perfect treatise. The editor of the present edition

acknowledges the difficulties he meets with in retaining the classification and arrangement of his author, and has been compelled to omit the section on General Pathology entirely, as well as the section on Dyspepsia, which has been entirely rewritten and subdivided in accordance with recent experimentation and treatment. The Pathology is supplied by Prof. Welch, of Johns Hopkins University, and revised so that it is perfect up to date. Modern therapeutics figure throughout the volume.

A COMPEND OF THE PRACTICE OF MEDICINE. By DANIEL E. HUGHES, M. D. Fifth physicians' edition. Thoroughly revised and enlarged; 568 pages. Full morocco, gilt \$2.50. Philadelphia: P. Blakiston, Son & Co. 1894.

Hughes' compend is one of the few books of that class not devoted in the main to the preparation of students for examination. The value of the book to the physician is shown by the necessity of a fifth edition. The same general arrangement is followed as in previous editions, the sections have been thoroughly revised, and a valuable section on mental diseases added. The author modestly disclaims any intention of replacing by his compend the text-books on practice of medicine, but he has prepared so excellent a compend that the physician possessing it will hardly need a text-book on the subject.

TEXT-BOOK OF MEDICAL CHEMISTRY FOR MEDICAL AND PHARMACEUTICAL STUDENTS AND PRACTITIONERS. By ELIAS H. BARTLEY, B. S., M. D. Third edition, revised and enlarged, with eighty-four illustrations. Cloth, 684 pages, \$3.00. Philadelphia: P. Blakiston, Son & Co. 1894.

The third edition of this work is an improvement on an already good text-book. An important practical and well-written section on physiological and clinical chemistry has been added and the entire book has been revised and enlarged. The author has avoided controversy with both the radicals and conservatives by retaining the established spelling of chemical terms and still incorporating in an appendix the rules for the changes advocated by the American Association for the Advancement of Science.

News Items.

LONDON had on August 24, 2,700 cases of fever in its nine fever hospitals.

RUSH MEDICAL COLLEGE will occupy its new chemical laboratory building this college year.

DR. W. A. KIMMIT has been appointed Registrar of Vital Statistics of the Department of Health.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION will meet at Hot Springs, Ark., November 20 to 23.

THE TRI-STATE MEDICAL SOCIETY of Iowa, Illinois and Missouri meet at Jacksonville, Ill., October 2 and 3.

THE MEDICAL SOCIETY OF THE MISSOURI VALLEY will hold its annual meeting at Council Bluffs, Iowa, on September 20.

DR. PHILLIP LONSDALE, Medical Director of the United States Navy from 1873 to 1879, died at Concord, Mass., August 21.

ALCOHOL FREE OF DUTY. The senate tariff bill admits free of duty alcohol to be used in the arts and for medicinal purposes.

A HOSPITAL CAR supplied with all the necessary appliances has been put into service by new New Jersey Central Railroad.

560 LEPERS are in the United States, says Dr. James Nevins Hyde. California leads with 158 and Illinois is fifth, with 13.

SMALLPOX CASES to the number of 141 were reported in London during July, 139 of which occurred in the last eight days of the month.

DR. N. S. DAVIS, JR., will deliver the address in Medicine before the Tri-State Medical Society, at Jacksonville, Ill., next month.

THE BACILLUS OF THE PLAGUE is claimed to have been discovered by Kitasato, who says that it resembles the bacillus of chicken cholera.

A SOCIETY FOR THE SUPPRESSION OF HANDSHAKING, as leading to an exchange of microbes, has been established in Baku, Russia.

MR. VICTOR HORSLEY, of London, has been granted the honorary degree of Doctor of Medicine by the University of Halle, Germany.

DR. J. H. McCASEY, of Concordia, has been appointed Superintendent of the Kansas State Insane Asylum, at Topeka, vice Dr. D. B. Eastman, resigned.

DR. ADOLPH HANNOVER, a distinguished Danish physician, at one time Professor of Medicine at the University of Copenhagen, died July 7, aged eighty.

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS will hold its seventh annual meeting at Toronto, Ontario, September 19, 20, and 21.

PROF. KOCH is reported to have gone to Woerishofen to place himself under the medical care of Father Kneipp the clerical advocate of the cold water cure.

DR. WILLIAM H. PARK, an American Medical Missionary, of Foo Chow, China, has been made a mandarin on account of services rendered a Chinese nobleman.

THE COLLEGE OF PHYSICIANS AND SURGEONS commenced its year's work on September 4. The introductory address was delivered by Dr. W. S. Christopher.

DR. PHILO L. HOLLAND, late house surgeon at St. Luke's Hospital has returned from Europe, and opened an office in the Venetian building, room 1013.

AND NOW COMES DR. TROUGHTON, of Seneca, Kansas, who opposes vaccination, claiming that it often inoculates the system with anthrax which is worse than smallpox.

DR. G. F. BUTLER has been elected professor of materia medica and Dr. John F. Milnamow, instructor in physical diagnosis in the College of Physicians and Surgeons of Chicago.

THE BRITISH MEDICAL ASSOCIATION will hold its sixty-third annual meeting in London, July 30 and 31, and August 1 and 2, 1895, under the Presidency of Dr. Russell Reynolds.

THE MORTALITY FROM CHLOROFORM is stated by Dr. Gwelt to be fourteen times as great as that from ether anesthesia. His statistics are taken from an analysis of 251,000 cases in the German clinics.

A MONUMENT TO VOLKMANN. At the recent bicentenary celebration of the University of Halle, a monument to Professor Richard v. Volkmann was unveiled with appropriate ceremonies.

DR. G. FRANK LYDSTON will, on October 1, begin a second course of illustrated lectures in Regional Surgery, at the Masonic Hospital, of Chicago. These lectures will be given every Monday, at 8 P. M.

THE TAILORS OF GRATZ not long since presented a petition to the Rector Magnificus of the University, praying that in future no student receive his doctorate diploma until he has furnished proof that he owes his tailor nothing.

DR. WILLIAM F. WAUGH, formerly professor of the practice of medicine in the Medico-Chirurgical College of Philadelphia, has been elected to the chair of physiology in the College of Physicians and Surgeons of Chicago.

THE NATIONAL SCHOOL OF ELECTRICITY called a meeting of physicians, September 11, for the purpose of hearing Dr. W. J. Herdman, of Ann Arbor, in the interest of the formation of a class in special courses in the study of electro-therapy.

PROF. HERMAN VON. HELMHOLTZ died September 8, the result of a stroke of paralysis, aged seventy-four. His contributions to medicine and physics are of the most valuable and voluminous character, and are a lasting monument to his name.

LI HUNG CHANG seems to be an economical old fellow. At the beginning of the war when it was proposed to organize a medical corps he vetoed the plan. "It will be cheaper to get new men than to heal the wounded." "We can spare a million men if necessary just as well as not and they don't cost much."

WANTED. Position as office attendant, or office nurse, to a physician. Have had three years' experience in the office of a gynecologist, as office nurse, bookkeeper, anesthetizer, and assistant at operation.

LOUISE BOYCE,

3833 Vincennes Avenue.

THE TORONTO COURTS have recently had the question of the contagiousness of consumption before them. A health officer demanded the dismissal from school of a child suffering from phthisis, and his action led to legal proceedings. The judge sustained the action of the health officer, deciding that the disease is contagious.

THE EMPEROR OF AUSTRIA has granted to the widow of the late Professor Billroth, a yearly pension of 2,000 florins. This is to be interpreted as a mark of special favor, because according to the law of Austria the pension allowed to widows of professors is only of 600 florins. As the distinguished surgeon is understood to have left little or no private fortune, the Emperor's grateful act has given general satisfaction.

THE SENATE TARIFF BILL lowers the duty on a number of drugs, that on castor oil being reduced 56 per cent below the rate under the McKinley law, and that on Epsom salts 34 per cent. Other reductions are, 30 per cent on cod liver oil, 50 per cent on bicarbonate of soda, 20 per cent on sublimed sulphur, 18 per cent on refined camphor, and 25 per cent on strychnine. The duty on spectacle lenses is reduced from 60 to 35 per cent ad valorem, a decrease of nearly 42 per cent.

MR. KNOX, Professor of Surgery in the Royal Infirmary Medical School, of Glasgow, Scotland, made a round of the hospitals in Chicago last month. On the evening of August 24, he was tendered a dinner by Dr. D. A. K. Steele, at his residence. Mr. Knox expressed great gratification at the character of the surgical work being done in this country, and said upon his return he would have to institute certain methods, especially of an antiseptic character, which he had found in use here, if he was to do the best sort of work. Mr. Knox, in the position he now occupies at the Royal Infirmary, is the successor to Prof Macewen.

DR. O'REILLY, of St. Louis, recently appealed to the Board of Health of that city to exert its authority to prevent the wholesale mutilation of women at the hands of local surgeons. It was stated that many laparotomies were performed without the shadow of an excuse, and that these so-called surgical operations had but the semblance of legality in their performance to keep them out of the category of attempted or actual manslaughter. *The St. Louis Medical Review* admits that Dr. O'Reilly was justified in his appeal to the authorities, and that unnecessary operations on the abdominal and general organs of women are scandalously frequent.

AN ALLIANCE OFFENSIVE AND DEFENSIVE will probably soon be entered into by the Northwestern University Medical School, Rush Medical College and the College of Physicians and Surgeons, whereby there shall be between these institutions absolute uni-

formity in respect to entrance regulations and also in respect to the methods of recording conditions of admission of each member of the class. The primary object of such an arrangement is that each party to the agreement shall promptly inform the other parties of any candidate for admission to the class, so that the other parties shall be protected against accepting rejected candidates. A similar agreement is in a fair way to be consummated between the homopathic medical colleges of the city.

NORTHWESTERN UNIVERSITY WOMAN'S MEDICAL SCHOOL, formerly Woman's Medical College, of Chicago, announces the following changes: Prof. I. N. Danforth has been elected Dean. Prof. John Hilton Dodson, succeeds the late Prof. Charles Warrington Earle, as Professor of Diseases of Children. Prof. Eliza H. Root succeeds Prof. Sarah H. Stevenson in the Chair of Obstetrics, resigned, and Dr. Leonard L. Skelton is made Lecturer of Physiology. The graduating class of '94, have started a reference library to commemorate the late Prof. Chas. W. Earle, which bears his name. The circular for 1894-5, announces that after this term four annual courses of lectures of not less than six months each, will be required of all its candidates for graduation.

W. H. SCHIEFFELIN & Co., of New York, this year complete the centenary of their house, and during this length of existence, which is unprecedented in this country, the firm name has changed but five times. Commencing with Lawrence & Schieffelin in 1794, it became Jacob Schieffelin in 1799, Jacob Schieffelin & Son in 1805, H. H. Schieffelin & Co., in 1814, Schieffelin Brothers & Co., 1849, and finally W. H. Schieffelin & Co. in 1865. They have issued an historical account of the firm. The work, which is beautifully printed and illustrated, not only gives one an idea of the advancement which has been made in this particular concern, but of the changes that have taken place in the general business and commercial relations of the country during this period. The firm is to be congratulated not only upon their ever widening range of business, but upon the production of such a satisfactory piece of book making.

HEALTH COMMISSIONER REYNOLDS in a report recently made to the Mayor after visiting the large cities of the Atlantic Coast and examining their hospitals for contagious diseases, makes the following recommendations:

We should build at once a permanent service building and living accommodation for twenty nurses, a steam heating plant

with capacity for heating quarters for 500 patients in an emergency, with proper steam laundry, disinfecting plant, morgue, mortuary crematory, a small building for the detention of doubtful cases, and at least two one-story permanent wards to accommodate sixty patients with proper attachments for the safe admission and discharge of patients, all of course, to be supplied with the best known system of ventilation. Ground should also be laid out and probably the foundation erected for other wards so that temporary structures could be quickly erected in an emergency. There are \$25,000 available with which to begin work as soon as the plans are approved and provision made for the necessary appropriation. A runway might be built at once over the river at Lawndale Avenue, and I am informed plans for it are already made and held by Mr. Artingstal. Water and gas must be introduced and some improvement made on the street. Relying upon a continuance of the valuable assistance heretofore accorded this department, I trust to see the structure of this hospital begun promptly upon plans commensurate with the city's present need, and capable of extension for the future. To a smallpox hospital we force people to go whether they desire it or not; hence it should be above criticism, and I know of nothing that should redound more to the credit of Chicago than proper provision for the decent salutary and humane care of a class of unfortunates whose lot is especially deplorable.

PAMPHLETS RECEIVED.

The Diagnosis of Charcot Joint. By William B. Noyes, M. D. *Med. Record.*, June 16, 1894.

General Paresis, A Toxine Disease. By H. M. Bannister, M. D. *Am. Journ. of Insan.*, April, 1894.

A Case of Cysticerus of the Vitreous. By W. Cheatham, A. B., M. D. *An. of Opth. and Otol.*, April, 1894.

The Morphology of Ovarian and Myomatous Tumors. By Howard A. Kelley, M. D. *N. Y. Journ. of Gyn. and Obst.*, June, 1893:

Hip Disease. By John Ridlon, M. A., M. D., and Robert Jones, F. R. C. S. E. *Journal American Medical Association*, February 18 and March 4, 1893.

The Reactions of Nucleo-Albumin, Erroneously Styled Mucin, with the Commonly Employed Urinary Albumin Tests. By D. D. Stewart, M. D. *Med. News*, July 14, 1894.

Surgical Treatment of Palatal Defects. By Truman W. Brophy, M. D., D. D. S. Read before the Section on Dental and Oral Surgery, Columbian Dental Congress, at Chicago; August, 1893.

Chromicized Catgut as a Means of Direct Fixation in the Treatment of Fractures and Osteotomies, with report of a case. By W. F. Jay, M. D. *Journal American Medical Association*, May 19, 1894.

Dentistry in its Relation to General Medicine. By George H. Chance, D. D. S., Portland, Oregon. A paper read before the Midwinter Fair Dental Congress and reprinted from the *Pacific Coast Dentist*.

Chairman's Address. Section on Obstetrics and Diseases of Women. Read at the forty-fifth annual meeting of the American Medical Association. By Joseph Eastman, M. D., LL. D. *Journal American Medical Association*, August 4, 1894.

Notes on Two Additional Cases of Thyroidectomy for Graves' Disease. *Journ. Nerv. and Ment. Dis.*, June 1894. Cases of Myxedema and Acromegalia Treated with Benefit by Sheep's Thyroids. *Am. Journ. of Med. Sci.* August, 1893. By James J. Putnam, M. D.

The Relation of the Public to the Hospitals for the Insane and their Inmates. Pro. of Minn. State Conf. of Char. The Inadequacy of the Morbid Changes found Post-mortem to Explain the Manifestations of Insanity. *Uni. Med. Mag.*, July, 1894. By H. A. Tomlinson, M. D.

The Electrical Treatment of Fibroid Tumors. *Journ. Am. Med. Ass'n.*, April 11, 1894. Certain Erroneous Principles and Methods in Gynecology. *An. Gyn. and Ped.*, May, 1894. Electricity in the Treatment of Chronic Prostatitis, and Impotence in Men. *Univer. Med. Mag.*, March 1894. By G. Betton Massey, M. D.

Further remarks on the Occurrence of a Form of Nonalbuminous Nephritis Other than Typical Fibroid Kidney. *Med. News*, April 14, 1894. A Serious Fallacy Attending the Employment of Certain Delicate Tests for the Detection of Serum-Albumin in the Urine, Especially the Trichlor-Acetic Acid Test. *Med. News*, May 5, 1894. By D. D. Stewart, M. D.

THE CHICAGO MEDICAL RECORDER

OCTOBER, 1894.

Original Articles.

TUBBING MADE EASY IN TYPHOID.

By DR. ALBERT H. BURR, PH. B., M. D., CHICAGO.

ATTENDING PHYSICIAN TO PROVIDENT HOSPITAL.

The triumphs of the Brand method of treating typhoid fever in the great military barracks of Germany and France by which the mortality, in many thousands of cases of this disease, has been reduced to 2 per cent ; the reports of Drs. George L. Peabody and W. Gilman Thompson, of its success in the Bellevue and Presbyterian Hospitals, of New York City, where the mortality which for ten years previous to its introduction ranged from 17.8 to 19.4 per cent, has been reduced to 7.5 per cent ; the still better results of Dr. J. C. Wilson in the German Hospital of Philadelphia ; the classical demonstrations of Winternitz and Voit in Germany, and Simon Baruch of this country as to its rationale and physiological action which have proved its superiority to all known symptomatic treatment by drugs ; the endorsements of such authorities as Von Ziemssen, Liebermeister and Strümpel, and the confirmation of all who have carried out this plan of treatment intelligently in private practice, should convince the medical profession at large of its great merits, and lead to its universal adoption in preference to all other methods of treatment.

Despite these overwhelming proofs of its superiority it does not appear that this life saving method has been generally adopted even in the hospitals of our country where it has been assumed, that it can be more easily carried out than in private practice. In order to learn how much it is being employed in Chicago hospitals,

an inquiry was instituted among six of our largest institutions with the result that in only one of these, The Michael Reese Hospital, is any attempt being made to use a method which Brand in his late report of 1,223 cases of his own and a few other clinicians, showed a fatality of only twelve, or a trifle less than 1 per cent. Dr. Goodkind, attendant physician, and Dr. Sievers, of the house staff, have studied temperature effects following these baths, and find the lowest point is reached one hour after completion of the bath, showing that fall of temperature is not the immediate result of heat abstraction, but without doubt is due more to elimination of toxins.

The reasons for the failure to adopt the Brand method on the part of American physicians are not far to seek. Chief and foremost among these reasons with the larger body of the profession is a lack of knowledge as to the rationale of the cold water treatment. A great majority make the mistake of regarding it as an antipyretic measure chiefly, if not solely, and so make choice of less troublesome means of reducing temperature.

There is infinitely more to the patient in this treatment than mere reduction of temperature. To the student of hydrotherapy that result is incidental and secondary. The temporary effects of artificial heat reduction are soon over. In a few hours the temperature is again at a maximum, no matter whether the agency be heart sedatives, coal tar derivations, or cold water even, if applied with that end in view. Such therapeutics are erroneous, as they are directed toward overcoming the effects of the disease or treating symptoms of the disease instead of laboring to overcome or limit the disturbing causes. Heat reduction in itself does not eliminate the toxins which have disturbed the nerve centers, depressed the vital forces, deranged organic functions, and interfered with tissue metabolism. Cold water, applied merely for heat abstraction, may be a most dangerous proceeding, but when carried out intelligently with the proper ends in view the tubbing method of Brand operates primarily as a powerful and immediate stimulus to the central nervous system through the sensory reflexes of the entire cutaneous surface which has come in contact with the cold water. The effects are instantaneous on the centers of respiration, and are responded to by deep spasmodic inhalations. The heart responds with slower, steadier, strengthened impulse, sending better oxygenated blood with increased force to all the organs of the body, and reinforcing their functional activity.

This increased activity on the part of the kidneys has been

beautifully demonstrated by the experiments of Roque and Weil, who have shown that the toxicity of the urine of patients when treated by the antipyretic coal tar compounds was about the same, or even less, than that of normal urine. When the expectant plan of treatment was observed the toxicity was double that of normal urine, but when the Brand baths were given the toxicity of the urine was increased sixfold.

This has convinced me that the greatest benefits of this method arise not from the mere reduction of temperature by heat abstraction, but by greatly increasing the elimination of toxic products through the emunctories of the body, and in corresponding ratio limiting their power to depress the vital force of the entire nervous system. As the surgeon gives free and open drainage to the products of infection in a septic cavity, so may the physician by this Brand bath favor physiological drainage of toxins through the kidneys, skin and other organs, from a body charged with septic materials. Thermo-genesis in typhoid is the direct result of septicemia. That method which in the highest degree facilitates excretion of toxins and limits intoxication must, of necessity, show the lowest mortality. This is eminently true of the Brand method over every other plan so far advocated, and we commend that large portion of the profession who still ignore or neglect its claims, to the very excellent chapter on hydrotherapy by Simon Baruch, in Hare's *System of Therapeutics*. How anyone can read and comprehend this, and then deliberately take the extra risks to human life by climbing up some other way, is beyond my comprehension.

There remains now that smaller and better informed body of physicians who do not make use of this plan, through ignorance of its merits, but because of certain obstacles in the way of putting it into practice. Among these obstacles are: 1. Entire absence of, or imperfect facilities for giving the treatment. 2. Dangers, to say nothing of annoyance, to the patient, arising from handling to and from the tub in another room, or even at the bedside. 3. The exhaustive labor imposed upon the attendants. 4. The considerable expense of providing a suitable tub which many patients could not afford. 5. The objections and prejudices of patients and friends to the discomforts of the plan as ordinarily carried out. To overcome these by no means trifling obstacles and place in the hands of the profession a device for giving these baths with all the essentials of the Brand method, I have constructed what may be termed a folding mattress bath tub, which I believe removes the objections just enumerated, and will

commend itself for the ease with which it can be employed under all circumstance and with the utmost comfort to the patient and nurse.

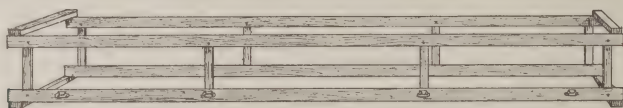
Briefly it consists: first, of a rubber sheet two and a half yards long by one and a quarter yards wide; second, of a folding crib-like frame of lightly constructed poplar, six feet two inches long, by two feet wide and eight inches deep, with fastenings along the outside of lower rail for holding the rings made fast to the edges of the rubber sheet. The accessories may be a couple of water buckets; a five-eighth inch rubber hose six or eight feet long for a



No. 1. Frame Folded.

siphon, to which a spray nozzle may be attached; a sheep's wool sponge of good size and a bath thermometer.

The rubber sheet is first slipped under the patient and drawn up over his pillow, and its edges tucked up alongside his body. The crib frame is then unfolded and placed down over the patient, resting upon the mattress and surrounding the patient, pillow, rubber sheet and all. The edges of this sheet are then drawn up over the top rail of the crib and down the outside to the lower rail where it is hooked fast by means of rings attached near its edges with elastic tapes. This completes a light and perfect tub with the patient resting undisturbed on his comfortable mattress and pillow.



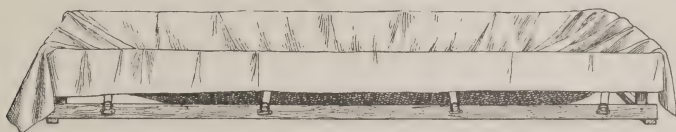
No. 2. Frame Opened.

The bath may be initiated as slowly or rapidly as desired with temperature grading from 90° down to 65° as required. Towels are first wrung out of cool water and laid over the chest and genitals; the face, neck and hands are then given a cool sponging and the bath begins in earnest by a spray or douche through the siphon from a bucket at an elevation of a table or higher. During all this time the patient is rubbed with gentle friction from head to foot for ten to fifteen minutes. The bath completed the water is siphoned into buckets on the floor; any excess is sponged up, the

edges of the rubber sheet are unfastened and dropped inside the frame, which is lifted, folded and set away. The rubber sheet may be slipped from under the patient or remain at will, with fresh linen over it, for the next bath.

You can readily see how this bath overcomes every objection raised. 1. You have here at small cost a portable tub, folding up into a small compass, which can be carried in the hand and used in every bed; capable of holding several buckets of water; quickly filled or emptied by a siphon tube with a nozzle attachment for spraying or showering if desired, which in my judgment is a most valuable feature of the bath, as it stimulates those deep reflex inhalations, which are of so great importance in oxygenating the blood and quickening its circulation.

2. The dangers and exhaustion from handling the patient are nil. He lies on his own comfortable mattress and pillow with no more disturbance than is required to pass a sheet under his body. His couch is a luxury compared to the hard unyielding walls of the usual bath tub. Moreover, the bath may be more readily modified in various ways, which is a desideratum in the case of highly



No. 3. Rubber Sheet in Place.

nervous and sensitive individuals, until they are gradually accustomed to the full bath at lower temperatures.

3. The nurse is saved the backaching task of stooping over the ordinary tub which at best is but a few inches from the floor. The strain of lifting the patient is entirely obviated. This will be highly appreciated by the overtaxed nurses who may well dread the exhaustion of attendance on typhoid fever. It is not to be wondered at if they add their protests to the rebellion of the patients and friends when tubbing, as it is tubbed, is suggested. It requires a physician with considerable moral courage and strong conviction of duty, as well as a firm hold on the confidence of patients and friends, to carry the day; otherwise he will quite likely lose his case to some easy-going confrère who will temporize and trifle along with inefficient sponging or the use of symptomatic remedies. Let me here affirm that sponging, however well done, cannot take the place of tubbing. It is at best a feeble substitute. Temperature

can be reduced by this means to a considerable degree, but it falls short of the chief result obtained by tubbing, viz.: reflex stimulation engendered by the contact of cold water over the entire cutaneous surface.

The author hopes this device for giving the Brand treatment effectually in the bed of the patient will render it more popular with the profession at large and extend its good offices in the saving of human lives.

2036 INDIANA AVE.

TOXIC AMBLYOPIA.

By JAMES A. LYDSTON, M. D., PH. G., CHICAGO.

LECTURER ON OPHTHALMOLOGY AND OTOTOLOGY IN THE CHICAGO COLLEGE OF PHYSICIANS AND SURGEONS; MEMBER OF THE AMERICAN MEDICAL ASSOCIATION, THE CHICAGO MEDICAL SOCIETY, AND FELLOW OF THE CHICAGO ACADEMY OF MEDICINE, ETC.

Accustomed as we are to such precise and accurately descriptive terms in ophthalmology, it is a matter of some surprise that such vague and indefinite ones as amaurosis and amblyopia should have withstood the changes of years and still confront us as we scan the index of every well-arranged ophthalmological text-book; but we presume that the ophthalmologist feels himself entitled to just as much license as does the author of every treatise upon the principles and practice of medicine, wherein we see an entire chapter devoted to jaundice, which is at best but a symptom of hepatic derangement. Were we to adhere strictly without qualification to the modern definition of amblyopia, we should confine ourselves strictly to those cases of visual perturbation in which there is no dioptric nor structural change to account for the defective visual acuity, but in strict accordance with my subject I must depart from such a fixed classification and embrace all forms of impaired vision arising directly or indirectly from retinal or optic nerve changes due to toxic causes, whether heralded by organic disturbances, ophthalmoscopically perceptible, or dependent upon retinal or optic nerve intoxication, under the one significant title, toxic amblyopia. Inasmuch as in every case of optic nerve or retinal change, arising from toxic influence, it is only in the later degenerative stages that characteristic phenomena assert themselves and become sufficiently grave to be perceptible to ophthalmoscopic investigation. Thus, grouping toxic amaurosis and toxic amblyopia together we find that a common cause is often the dom-

inating etiological factor. Thus we have uremic amaurosis and uremic amblyopia, designed to describe different degrees of impaired vision consequent on one and the same cause. Therefore, with the remark that I shall not attempt to differentiate between toxic amblyopia and toxic amaurosis, regarding the two terms, as we must, as simply differing in degree and descriptive of visual changes resulting from either moderate or severe retinal or optic nerve intoxication or structural change, I will at once invite your attention to a few clinically demonstrable facts that may serve to shed some light upon a subject which is at best but a poorly comprehended and complex topic.

Samelsohn is entitled to credit for having presented us with the knowledge that anatomical investigation revealed in all cases of toxic amblyopia an inflammation of that part of the optic nerve lying within the optic canal, which serves to explain many otherwise inexplicable optic nerve changes. Toxic amblyopia has been known to result from many and various causes. As significant of its origin, we are burdened with numerous names descriptive of the disease. Thus we have amblyopia uremica, amblyopia albuminurica, amblyopia saturnina, amblyopia diabetica, amblyopia nicotinic, amblyopia alcoholica, &c., &c., and of all these, probably from their greater frequency, amblyopia nicotinic and amblyopia alcoholica are the most commonly described and more fully appreciated, and we find these forms to be accompanied by a chronic retro-bulbar neuritis which lies at the bottom of the subjective manifestations—defective vision, nyctalopia, scotomata, etc., which are the suggestive manifestations to the patient, and if the interstitial neuritis is overlooked will ultimately lead to permanent optic nerve changes, such as atrophy of the nerve, blanching of the papilla, atrophic excavation, contraction or narrowing of the retinal blood vessels and consequent pronounced limitation of the visual field.

Arlt described the condition that we appreciate to-day as amblyopia nicotinic under the title of amblyopia nyctalopia, inasmuch as nyctalopia was its most striking symptom, ascribing the nyctalopia to dazzling by intense illumination for lack of a better explanation; but thanks to Samelsohn, we are able to define a more plausible reason for the changes. Three well marked and typical illustrations of toxic amblyopia, or better, retro-bulbar neuritis from toxic causes, arising from the excessive use of tobacco, and aggravated by alcoholic indulgence and excessive venery, have presented themselves to my notice in the last few

months, and in each instance I was able to define marked retinal ischemia, pronounced pupillary dilatation, together with sluggishness of the pupil under the reflex stimulus of light. In all cases the attention of the patient was directed to his eyes by great visual deterioration in both eyes, and that, too, to a similar degree in each. The constancy of nyctalopia as a symptom occurring in the early stages of this affection, I believe with Arlt, is partially explicable on the ground that the pupil is dilated, and therefore during the day permits light to enter the eye in floods, producing a disagreeable glare, dulling the retinal elements by over-stimulation. As we know that when the eye is suddenly exposed to the influence of the terrific glare of an arc light its retinal impressions are almost obliterated, as was typically illustrated in one of the electric light fitters in the Champlain building, whose eyes I had the opportunity of examining ophthalmoscopically immediately after they had been subjected to the flash consequent upon a short circuit. In this case there was developed an acute traumatic conjunctivitis and an amblyopia fugax, both of which symptoms disappeared with appropriate rest under atropine, dark glasses, etc. Aside from hyperemia or ischemia of the disc, we may say ophthalmoscopic examination reveals no changes in early cases of toxic amblyopia.

Testing the vision, however, we note gradual diminution of the visual acuity, the cause of which is a central scotoma. This scotoma is horizontally oval in form, extends from the macula lutea to the optic disc and corresponds to the maculo-papillary region of the retina. The gap is noted where the vision is tested by means of a white object, but red and green change in the region of the scotoma, appearing less highly colored than in other parts of the visual field, and as the case progresses, red becomes wholly imperceptible, and finally white disappears in the area corresponding to the scotoma, the vision is reduced to its extreme, and we have now an absolute scotoma, but here, as in other instances in which it is advisable to test the visual perceptivity of color, we must remember that even within physiological limits the perception of colors is not the same in all portions of the visual field, *i. e.*, there may be a wide difference between central and peripheral color perception, and while we can test the central region with the colored skeins of Holmgren, the peripheral color acuity must be investigated by movable colored bodies which are forced into different positions throughout the visual range, and thus are we able to define that the peripheral retinal domain is normally color blind.

The etiological factor in that variety of toxic amblyopia styled amblyopia nicotinic is the excessive chewing or smoking of tobacco combined with excessive drinking, sexual excesses, etc., consequently most, if not all, cases are found among men, and not earlier than middle life, more frequently in cases of advanced age, as it seems that as age advances the optic nerves become less tolerant to the effects of nicotine, and again individual predisposition or particular susceptibility seems to be a prime factor in certain instances in this class of cases, therefore comparatively small quantities of nicotine are sufficient in exceptional cases to produce optic nerve intoxication to the degree of exciting amblyopia, while in others, *per contra*, there seems to be almost complete immunity to this affection. A point possibly that exercises an important bearing in the way of explaining the occurrence of toxic amblyopia is the fact that in certain cases the physiological excavation involves almost the entire disc, and the fibers corresponding to the area of the disc implicated in the physiological excavation are consequently more prone to degenerative change. And again, another predisposing factor is, in my estimation, the fact that in adult life the optic nerve fibers lying adjacent to the pial sheath at the margin of the nerves regularly experience atrophy, while coincidentally therewith atrophic changes assert themselves in those fibers contiguous to the central vessels, which, complicated by the toxic influence of any poison having a particular predilection toward optic nerve degeneration, favors optic nerve change with consequent amblyopia.

With respect to treatment, the primal indication is to eliminate the exciting or predisposing factor. We must at once withdraw tobacco and advise complete abstinence from alcoholic beverages, excessive venery, etc.; in short everything that tends to deplete or lower the vital powers of resistance must be eschewed. Proper regimen of the eyes advised and instituted, excessive close eye work, as well as exposure to the dazzling effects of bright light, should be avoided, and tonic measures of treatment at once applied. Among the remedies that stand preëminently forth in the management of toxic amblyopia from whatever cause, we yield the palm to strychnia, hypodermatically given, either at the nape of the neck, or in the temporal region. To Nagel belongs the credit of having first used strychnia in cases of optic nerve change, and Hippel has determined that it exercises a mildly stimulating effect upon even the normal nerve, increasing visual acuity in a transitory manner and widening the field of vision. In addition to strychnia hypo-

dermatically and internally, iodide of potassium, in goodly sized doses, seems to exercise benefit by its eliminative tendencies, and at the same time probably separates nicotine into less toxic compounds. Another efficient remedy is pilocarpine, both internally and hypodermatically administered, exercising its effects through elimination, diuresis and diaphoresis. Numerous other therapeutical agents are said to excite a retro-bulbar neuritis with consequent amblyopia. Among the most conspicuous of which are stramonium, carbon bisulphide, lead, chloral, opium, quinine, osmic acid, etc. I have met with toxic amblyopia arising from huge doses of quinine, but here there were, as a rule, no diagnostic optic nerve changes, aside from retinal ischemia or hyperemia and slight swelling of the disc, and the amblyopic manifestations were fugacious in character, so that the diagnosis was necessarily based upon the immediate restoration of vision following withdrawal of the medicament, which was exercising a toxic effect exhibited by the amblyopic manifestations.

CHAMPLAIN BUILDING.

VIBRATORY MEDICINE.

By HUGH T. PATRICK, M. D.

LECTURER ON NEUROLOGY, CHICAGO POLICLINIC.

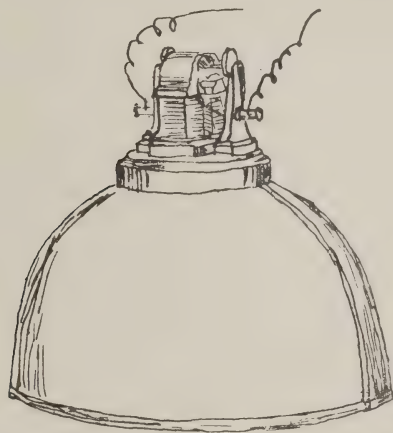
I thought the society might possibly be interested in seeing one of the later productions of so-called vibratory medicine. This is called a vibrating helmet, the casque vibrant of Gilles de la Tourette. It consists of a nickel-plated helmet, in shape much like the crown of a derby hat, surmounted by a small electric motor, the revolving armature of which is armed with two small eccentric wheels. It is the rapid revolution of these eccentrics that causes the whole to vibrate. The inside is supplied with a number of broad steel strap springs which radiate from the center of the vertex and pass almost to the rim, making it possible to adjust the helmet to any head, and serving to transmit the vibrations. I run the motor by means of a storage battery, which enables me to regulate the number of revolutions, that is vibrations, from six to eight to one hundred or more per second, the usual rate being about fifty. The length of the sittings is five to fifteen minutes, and their frequency three to six times a week. Be it understood that this is in no sense an electric treatment. The current

Chicago Medical Society, September, 1894.

never reaches the patient, the battery being used simply as a means to obtain the mechanical result.

The history of vibratory therapeutics is very briefly as follows: In 1877, Mortimer Granville, of London, began to experiment with a percuteur, a rapidly vibrating hammer run by clock work, and used for percussion over painful points, along the spine, etc. He has since improved and elaborated it and now uses electricity as the motive power. He published nothing until later.

In 1878 Vigouroux¹ tried the effect of vibrations upon the subjects of hysteria at the Salpêtrière. He used an enormous tuning fork mounted on a sounding box about a yard high and set in vibration by a fiddle bow, and he found he could remove the hemi-anesthesia and contractures of hysterical patients the same as



Charcot had done with the magnet and metals. One case of tabes was treated by introducing his legs into the sounding box and his lightning pains were relieved.

The following year Schiff arrived at like conclusions from purely theoretical grounds, although he had seen the experiments of Vigouroux. In 1880, Boudet de Paris,² a physician and electrician applied vibrations locally, employing an electric tuning fork, applied to the painful point by means of a small arm terminating in a disc. He relieved migraine and similar troubles and in normal individuals succeeded in from eight to twenty minutes in inducing a pronounced local analgesia. He found the results more positive 1, when the disc was applied directly over the branch of a nerve,

¹*Progrès Medicales* 1878, p. 747; 1880 p. 730.

²*Progrès Medicales*, Feb. 5, 1881.

and 2, where the tissues were not too thick and rested upon a firm base, as about the head. He thought though, that the vibration of the brain itself might play a role in the production of the results achieved. Boudet's article was followed by a claim of priority by Granville who then wrote several papers³, and in 1883 appeared his book on Nerve Vibration and Excitation abounding in ingenious but untenable theories and gratuitous assumptions, or at least, in theories and assumptions that cannot be proven in the present state of our knowledge of nerve physiology and pathology. The essential point is that he claimed a considerable success in the treatment of various painful and other nervous affections. I may add that I called on Dr. Granville some four or five months ago, and he told me that the percuteur was still in successful operation.

Up to this time the subject had been approached from a purely theoretical standpoint. Mortimer Granville was led up to his experiments by a consideration of the manner in which cold relieves pain and passed on, by way of Newton's doctrine of concords and discords and other discoveries in physics, to the conclusion that the effects of his rapid tapping were due to "the extinguishment of a morbid set of vibrations by the superimposition of another, incompatible or discordant set of vibrations." Vigouroux had imagined an hypothesis of vibrations to account for the various phenomena of metallotherapy and hoped to find support for it in the effects of sonorous and mechanical vibrations and Boudet of Paris simply continued these experiments. Now, however, the departure was to be from clinical facts.

Charcot had frequently called attention to the fact that many subjects of paralysis agitans experienced considerable relief during a railway journey or omnibus ride, a relief which continued for some time after the termination of the trip, and he suggested a therapy founded on this fact. In accordance with his suggestion Dr. Jégu caused to be constructed a "vibrating chair," which is in constant use at the Salpêtrière and which has been found to afford great relief in many cases. The patients after a treatment lose their troublesome sensations of burning, prickling and other paresthesiae, and the feeling of general discomfort; they feel lighter, less rigid and walk better.

Pursuing the theme still further, but recurring to the ideas of Mortimer Granville and Boudet of Paris, Gilles de la Tourette, with the aid of M. Larat, a skillful electrician, constructed this

³Lancet, Feb. 19, 1881. Brit. Med. Jour., March 11, 1882. Ibid., March 10, 1883.

vibrating helmet. The two apparatus were made the subject of a lecture by Charcot in 1892, which revived the memory of some earlier efforts in the same direction which had fallen into oblivion. Gilles de la Tourette reviews the subject in the *Nouvelle Iconographie de la Salpêtrière* for 1892, which, so far as I know, is the latest news on the subject. I visited him and M. Larat last January, when they informed me that the helmet was in constant use, with satisfaction to the patient and physician.

It is claimed for the helmet that it cures or relieves neuralgias, migraine and other headaches, and the distressing cephalic paresthesia of neurasthenics; that it has succeeded in these affections when all other means, notably electricity, had completely failed; that it is a general sedative and calmative, an efficient hypnotic and effective in some cases of melancholic depression. My own experience is, as yet, too limited to allow of positive deductions as to its practical value, but I shall take pleasure in reporting later, whether my results are gratifying or the reverse. I feel safe, however, in saying that the helmet is something more than a therapeutic toy and a means of suggestion. I was obliged to discontinue its use in one case of nervous exhaustion because of a burning sensation it occasioned in the occipital and cervical regions and a general feeling of discomfort and vibration extending along the entire spine and which continued three to four hours after the séance.

On myself, if used too long, it produces a lightness in the head with a slight sensation of nausea and vertigo. One patient fell asleep during the second application which he has continued to do about each alternate time since. Another who had been suffering exceedingly with headaches two or three days out of each week, so severe as to almost incapacitate him for all work had no severe headache during the first three weeks of treatment. I then went out of town for a few days, and on the day of my return he had a severe headache which the helmet relieved for a few minutes only. He has had none since, a period of three weeks. In another case the benumbing effect was so pronounced, whether on the peripheral nerves or sensorium I do not know that the helmet, gradually displaced by its vibration, finally slipped off the patient's head and fell to the floor before he was aware of it. It was replaced, and the same thing occurred again except that this time I caught it before it could fall.

A consideration of the *modus operandi* of the apparatus is aside from my object this evening, but I may, perhaps, say that in addition to the influence of rhythmic vibrations upon the sensory

nerves, consciousness and psychic processes, it has occurred to me that this vibration of the cranium and its contents might be looked upon as a massage of the brain. I am well aware that this proposition has a rather startling sound, but the nutrition of muscle fiber is promoted by rubbing, kneading and percussion, the several structures that go to make up a joint are coaxed back to a normal condition by the various mechanical procedures of Swedish movement, and it has seemed to me not altogether unreasonable to suppose that the circulation of fluids in the brain and the nutritive processes in cell and fiber might be promoted by this gentle agitation.

VENETIAN BUILDING.

A SIMPLE STAIN FOR CILIATED BACTERIA.

By DR. WILLIAM HESSERT.

Robert Koch and F. Loeffler have shown that all motile bacteria exercise this function by virtue of one or more fine cilia, attached to the end or at the sides of the organism. Koch¹ in 1877 noticed the flagelli in unstained preparations, attached to certain species of large motile microorganisms and recent researches have proved that independent movements are possessed by all spirilli and vibrios, by many bacilli and a few cocci.² These cilia are extremely delicate and fine and with the exception of spir. undula and a few species of large bacteria are beyond observation when viewed in the natural state. Indeed the opinion prevails that the flagelli of by far the majority of motile bacteria do not take on any stain with solutions of aniline dyes used in the ordinary way, and efficient in staining the bacteria proper.

Loeffler³ in 1889, published his method of rendering the cilia susceptible to aniline colors by the previous use of a mordant, and the process has proved invaluable in bacteriological researches and has largely been the means of proving the assertion that all motile organisms possess cilia. Other methods for the same purpose have been devised, but I will simply refer to the original communications of Kunstler,⁴ Neuhaus⁵, and Trenkman.⁶

¹ R. Koch-Cohn's *Beitrage zur Biol. der Pflauzen*, Vol. II., 1877.

² C. Guenther, *Bacteriology*.

³ F. Loeffler, *Centralbl. für Bacteriologie*, Vol. VI., 1889, and VII., 1890.

⁴ Kunstler, *Centralbl. f. Bacteriologie*, Vol. II., 1887.

⁵ Neuhaus, *Centralbl. f. Bacteriologie*, Vol. V., 1889.

⁶ Trenkman, *Centralbl. f. Bacteriologie*, Vol. VI., 1880.

While engaged in bacteriological work in Göttingen, I noticed that the cilia of cholera vibrios were susceptible to a stain with fuchsine alone; without the interposition of a mordant, as after the Loeffler method. Proceeding in the manner detailed below, I found that in the case of cholera germs, in any microscopic field by no means all, but a number of vibrios could be seen distinctly ciliated. Loeffler's method stains not only the bacteria proper, but also their protoplasmatic capsules, consequently the organisms appear much more voluminous than under ordinary circumstances, and the cilia also partake of the enlargement. Stained with fuchsine alone, however, the bacteria, cholera and others as below, retain their ordinary dimensions, consequently it requires at times the most accurate focusing to see the cilia. The process was as follows: A minute quantity of material is taken from a streak culture, best made upon agar-agar and kept at 37° C. for twenty-four hours; this insures the most suitable material for staining purposes. The particle is then evenly disseminated in a few drops of distilled water, and of this a sufficient quantity is put upon a cover glass and allowed to dry. The glass should be free of grease so that the small drop will flow to all sides without being stirred about with the platinum loop, as this rough treatment will detach the delicate cilia from the organism, as can be shown by the appearance of many detached cilia in such a preparation stained after Loeffler. The preparation is then fixed either in the usual manner by drawing it through the flame three times, or treated with a saturated alcoholic solution of bichloride of mercury. The latter fixes the bacteria upon the glass efficiently and obviates the danger of over or underheating. The glass is then treated with the staining fluid, best a 10 per cent aqueous dilution of a saturated alcoholic solution of fuchsine, for thirty or forty minutes, or longer, it being also necessary to bring the fluid to the steaming point about every five minutes. The cover glass is then thoroughly washed, dried and sealed in balsam.

After achieving fair success with cholera germs, other organisms were treated similarly but with no degree of uniformity. Typhoid bacilli, stained for an hour were found distinctly ciliated; in case of bacterium coli commune, fixed with sublimate, numbers of cilia took up the stain. Preparations of vibrio Finkler-Prior contained only few scattered flagellated organisms; bacillus cyanogenes and vibrio aquatilis. Hamburgensis was negative.

The purpose of this communication is by no means to compete with such an efficient method as Loeffler's, but simply to call

attention to the interesting fact, which I have never seen mentioned, that by a very simple process it is possible to stain the flagellated appendages of some microorganisms. I deplore the fact that I have not the time at my disposal for the further pursuance of the subject, but hope that others favorably situated may develop the process into one of practical value in bacteriological technique.

HYGIENIC INSTITUTE, GOETTINGEN.

FURTHER NOTES ON SPERMINE.

By DR. G. KRIEGER.

Last April I had occasion to exhibit before you a patient previously suffering from a severe form of chorea, who recovered completely and permanently after six injections of spermine. Since then I have had an opportunity to see the efficacy of this treatment in a similar case still more pronounced than in the one exhibited.

The patient who now stands before you is a boy, six years of age, who has since the last two years been suffering from chorea. During this time he was under treatment of several physicians who applied the common remedies and electricity without success. Last May the boy was brought to Dr. Bettmann for examination of his eyes. Dr. Bettmann, who will report more definitely, prescribed suitable glasses. Two months later the doctor referred the case to me for a treatment with spermine injections.

When I first saw the boy, his fingers and muscles of the face were constantly jerking in a spasmodic way, and his gait was so uncertain that at times he stumbled. After two injections of eight minims, the boy became decidedly more quiet, and from the fourth day on, he did not show the slightest symptom of chorea. His nervousness disappeared; his gait, appetite and sleep improved, and his manners and general actions when playing with other children, became perfectly normal.

Such rapid changes of the nervous system, especially in cases like this, where any reflections as to the hypnotic influence or suggestive power of a new treatment may readily be excluded, are certainly hard to explain, and answering to many inquiries on this subject, I would like to give my views referring to the physiological effect of spermine, by quoting a few interesting facts:

After it had been proved that most of the animal glands contain spermine, and that it circulates in the blood, further investigations have shown that it is a very active factor, by its power to promote oxidation. The poisoning effect of many drugs and chemicals, as chloroform, ether, oxydul of nitrogen, carbon oxyd, strychnia, etc., is due to a disability of the red blood corpuscles to absorb oxygen. This disability is lessened or totally removed by the action of spermine. This explains the reviving effect of spermine injections in narcosis, poisoning by strychnia, etc. It also characterizes the efficacy of spermine in cases with exhausted conditions of the organs and the nervous system, as in phthisis, diabetes, soörbutus, anemia, neurasthenia, marasmus, etc., because all these conditions are brought on by a lack of intraorganic oxidation.

The final effect of spermine will, therefore, be increase of vitality of the respective organs, and the whole organism. That such an increase of vitality, especially in the nervous centers, can really be obtained, has been shown by the following experiments :

1. When after a spermine injection, a frog's spinal cord is cut, the paralysis of the bladder and extremities is not as complete as it usually is without the use of spermine.

2. When a frog is poisoned with strychnia, after an injection of spermine he will not suffer from tetanic convulsions to the extent that he does without spermine.

From such and similar evidences it is not illogical to conclude that a higher intraorganic oxidation is in fact a self-defense of the organism against agents which in any way have a depressing effect.

This theory is substantiated by the effect of spermine upon cultures of cholera bacilli. A virulent cholera culture, when in contact with sulphuric acid which is free of nitrous acid, shows a scarlet to purple red color, a reaction which is recognized as specific for genuine cholera, and commonly known as the "cholera red reaction." In the presence of spermine this reaction does not take place, the development of the culture is greatly retarded and its virulence is reduced to such an extent that its pathological effect is about equal to that of the vibrio found in cholera nostras or catarrh of the intestines.

This fact might suggest that a practical use could be made of spermine as a therapeutic agent in cholera. But as the action of chemical substances observed in the test tube does not always cor-

respond with their effect in the organism, it remains to be seen whether or not spermine will act in the above mentioned way within the intestines. The experiment would certainly require to flush the intestinal tract with a large quantity of spermine solution. So far, similar experiments made with antiseptic fluids failed on account of the toxicity of same when given in large doses, and I think in this respect the use of spermine, which is absolutely harmless in any quantity, will manifest a decided advantage of its own over other substances heretofore used for the same purpose.

It will, of course, be a question, if spermine can be manufactured cheap enough. As yet, the process of preparation is pretty expensive, and not always successful. I have here a specimen of macroscopic crystals larger than are usually obtained. The liquid is tungstate and sulphuric acid, in which they are insoluble. In order to ascertain the presence of spermine in any fluid, a few drops of the latter may be placed in an evaporating dish, and a saturated solution of alloxan added. When heated, the previously colorless fluid will leave a purple red spot, which with caustic of soda or potash, turns to violet, and by addition of acids, is again discolored.

With special reference to chorea, I wish to suggest the following theory for the origin and cure of this disease.

By chemical transformation in the nervous substance, free nitrogen is formed under certain conditions, based upon lack of oxydation. This nitrogen when in proper proportion with lecithin and phosphoric acid forms a substance of very little stability and inclined to rapid dissolution, by which a sudden irritation of the nervous centers is brought about, and such irritations become visible by their effect to the various muscles. When the normal oxydation is restored, the noxious nitrogen is eliminated, and in this way the cause of forming an irritating substance is removed.

This theory may seem somewhat artificial or peculiar, but looking over what we know for certain regarding chemical and pathological changes in the animal system, we can easily find corresponding facts, which explain the occasionally observed strange action of substance.

During the process of cellular nutrition, the albumen of the cell is changed by regressive metabolism into different products, the last of which is urea. We may distinguish three degrees of differentiation: The products of the first degree are the albu-

mines, some of which, especially when in contact with noxious microbes, are poisonous: toxalbumines.

The products of the second degree are the derivatives of ammonia. Armand Gautier distinguishes three groups of these: (a) the xanthines; (b) the keratines; (c) the various bases, as cholin, muscarin, and acids, as glycocoll and hippuric acid.

The products of the third degree is uric acid and urea.

The intermediate products are partly harmless and partly deleterious to the organism. When the latter, for lack of further transformation remain in the system, the effect is an autointoxication as most clearly seen in uremia. Such autointoxications are in fact the cause for many diseases, which can be proven by the different toxicity of the urine. For instance, the urine of a healthy person hypodermically injected into a rabbit will do considerably less harm than the urine of a person suffering from any disease which is based upon weak functions of the organs, or, to speak chemically, upon an incomplete change of substance on account of lack of oxidation. For the same reason, the urine discharged during the night shows a higher toxicity than the urine discharged while a person is awake and active. According to Bouchard's investigations, the coefficient of toxicity for normal urine is 0.465. This coefficient increases during acute fevers, as scarlet, typhoid, pneumonia, acute tuberculosis, and in all anemic patients to the extent of 50 to 100 per cent. Leprin and Aubert found that hypodermic injections of urine taken from patients with certain nervous diseases causes clonic spasms. The toxicity of such urine is directly proportional to the amount of leucomaines and other intermediate products present. Bainet and Silberet succeeded in preparing three leucomaines from a case of strumexophthalmia or Basedow's disease and experiments with these substances were to the effect, that animals inoculated with same showed symptoms similar to the original case. Griffith also isolated from the urine of an epileptic patient a leucomaine, which injected into dog, caused spasms, vomiting, dilatation of the pupils, and finally death.

Such deleterious leucomaines are without doubt forming constantly in our organism, and would do much more harm were they not eliminated or balanced by natural chemism, in particular by oxidation. The necessary impulse for these chemical actions is given by catalytic agents, the analogues of the well-known ferments which are instrumental in the process of digestion.

Some noted physiologists, as Traube, Tacquet, Gautier and

others, have anticipated the existence of these agents long before the scientific researches of Brieger and Ehrlich, threw light upon the different leucomaines, and toxines, and with other investigators of this subject I believe that the most important catalytic agent is found in the substance of spermine.

This idea is strongly supported by the following undeniable facts:

1. The chemical properties of spermine as an oxydizing agent.
2. The clinical observations that removal (extirpation) of certain glands in which this and similar substances are produced, is followed by cachectic conditions, cachexia strumipriva—orchidopriva, Addison's disease.
3. The stimulating effect of spermine in cases of depressed and exhausted conditions.

103 STATE STREET.

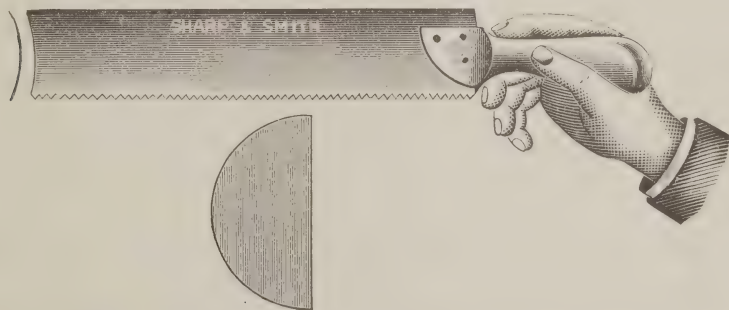
A NEW SURGICAL SAW.

By J. D. SKEER, M. D., CHICAGO.

A review of the literature of excision of the knee joint will convince any one that the operation is not as successful as we should like to have it. Where there is nonunion of the bones after the operation we have conditions that may give rise to any degree of deformity. The bones may be out of line, the foot everted, or the leg may be flexed, with more or less backward displacement of the tibia, and the joint be full of abscesses, conditions which may demand amputation of the thigh to save the life of the patient. Any procedure that will prevent the rotation and backward displacement of the tibia, without the interposition of any foreign body between the cut surfaces of the bones, will contribute to the success of the operation. If the tibia were cut off slightly concave and the femur correspondingly convex the bones would lock together in such a way as to prevent rotation and the backward displacement of the tibia. This method of joining the bones together was first practiced by Dr. Fenwick, of Montreal, in 1868, and published in the International Encyclopedia of Surgery. The doctor used a fretwork saw adapted to a butcher's frame, and states that the "bones should be accurately adjusted, and if they do not fit nicely, saw off a thin slice from either or both of the bones, and if necessary remove thin slices with the cartilage knife."

Objection has been urged against Fenwick's operation for the reason that pockets have been found between the ends of the bones in which matter accumulated and prevented union. I apprehend that the pockets and irregular open spaces were made with the narrow saw and the cartilage knife at the time of the operation.

I propose to improve the technique of this operation by making the concavo-convex sections with a concavo-convex saw which I have devised for that purpose, and which cuts a true circle, so that when the cut surfaces of the bones are brought together they will coaptate with mathematical accuracy. The practice of nailing the bones together is losing favor, and in my opinion will soon be abandoned. A very popular method of holding the bones in position is to unite them with strong copper wires, their ends twisted together and cut long enough to project through the flesh wound, and tightened by twisting them from time to time as they cut their way through the soft tissues. I should retain the bones in position with steel wire staples, driven into their compact tissue, their concavo convex surfaces being in perfect coaptation, without



a nail, or a wire, or any other foreign body between them to prevent union.

The saw blade is nine inches long and two inches broad, curved on the flat with a concavity of one-fourth of an inch. It should be placed at the proper angle and in a line parallel to the transverse diameter of the bones, and should be accurately kept on that line until it cuts its way through.

I have permission to refer to a case of excision of the knee joint which took place in the Presbyterian Hospital on the 6th inst., in the service of Dr. D. W. Graham. When the bones were ready for the saw the doctor kindly invited me to make the sections with this concave saw, which I did for the first time, and when the bones were brought together the coaptation was perfect, as Dr. Graham can testify.

A guide can be used to secure the proper position of the saw. It consists simply of a small piece of thin board shaped on the same circle as the saw blade. For various bones or the requirements of cases, saws of different curvatures may be used. They have been made for me by Sharp & Smith, of this city.

681 WASHINGTON BOULEVARD.

REPORT OF CASES.

By ARTHUR R. EDWARDS, M. D., CHICAGO.

CASE I. CHRONIC DILATION OF THE HEART, PROBABLY MYOCARDITIC IN ORIGIN.

Previous history. Patient has had measles, chicken-pox and chorea. Twenty-three years ago suffered from acute articular rheumatism in all the joints with high fever and absolute helplessness. As a boy, he was gardener. For five years he was mule driver, delivering flour, an occupation he considered fairly laborious. Later he drove a dray, express wagon and truck. For five years, he worked with a threshing machine, and since then he has driven a truck. He has never used alcohol to excess, chews but little and does not smoke because of vertigo produced by tobacco. No venereal history is admitted. A previous hernia has disappeared.

Present trouble began long ago, but patient cannot remember the exact date of its onset. His hands have been livid for years. He has coughed for four years and suffered from vertigo for three. He had an attack of hemoptysis. Physicians variously diagnosed his case bronchitis, asthma, hay fever, dropsy, and heart disease. For two or three years the ankles have swollen from time to time. The patient cannot lie on his left side and he is conscious of laborious and irregular cardiac action. The fingers are often cramped. Pains, radiating from the heart into the neck are frequent.

Physical examination, January, 1894. Hands and feet cool, cyanotic, clammy, slightly edematous; lips cyanosed; conjunctiva injected; pupils equal, reacting to light and accommodation; head, scalp, skull, mouth and ears negative; no evidences of syphilis; glands, bones and joints negative; nervous system negative; pulse soft, compressible, very irregular in force and rhythm, often intermittent and 63 to the minute. Sphygmographic tracings demon-

strate the arrhythmia. The cervical veins are negative; carotid and femoral arteries pulsate weakly but visibly; the jugulum is negative; the radial pulse is somewhat retarded; skin cold and clammy; radials evidence some arterio-sclerosis. The heart dullness is bounded by the third intercostal space, the middle of the sternum and a point one finger's breadth external to the nipple line; the apex beat is not visible, but palpable; the tones are pure, though faint; there is marked irregularity in rhythm; there is no accentuation of any tone. Lungs, abdomen, and urine entirely negative.

May, 1894. All borders of the heart are the same except that the apex beat is in the sixth intercostal space, and three fingers outside of nipple line. The apex beat is visible. Right heart not enlarged. No epigastric pulsation. No murmurs. No accentuation of any heart tones. Pulse rate is 60, while 100 to 110 beats can be ausculted over the apex. There is constant tingling in the finger tips as though they were pricked with needles. Slight expectoration. Cramps in the muscles of the hands. Feet edematous.

June. Outlines of heart the same. No murmurs. Right heart not enlarged. At times the first tone over the apex is pure, again it is long drawn out but not having any blowing character. No accentuation of any tone. Lungs negative. Abdomen negative save that the liver is somewhat enlarged and tender.

August. Patient has had several attacks of vertigo, nausea and sweating. During these attacks his intellect is cloudy, he becomes ill-natured and peculiarly stubborn. He has precordial pain which he describes as "cramp-like" but it is sometimes lancinating. It radiates toward the neck, left shoulder and axilla. There is some mucous expectoration, anorexia, and constant vertigo. Retinae and urine negative. During his attacks his memory is impaired, his hearing difficult and his vision imperfect. He thinks his condition is now worse. During sleep he has muscular contractions which awaken him. There is now considerable dyspnoea. For two days, diarrhea and abdominal pain, with edema of the extremities. Paraesthesia in legs.

September. The right heart is dilated, extending two fingers to the right of the sternum. The second pulmonary tone is moderately accentuated and a faint mitral systolic murmur is heard. Last week the right heart became smaller and the systolic murmur disappeared.

REMARKS. This heart case is somewhat exceptional from a

diagnostic and therapeutical standpoint. From the diagnostic side, the general symptoms are those of cardiac incompetency, evidenced by passive congestion of liver, lungs and extremities. To these symptoms are added those of occasional cerebral anemia. The intrinsic cardiac phenomena are stenocardia and dilatation. Only recently have we heard a murmur, the case being under constant observation since Christmas. The mitral regurgitant murmur may be explained as a relative insufficiency. The sphygmograph shows arrhythmia. In view of the cardiac dilatation, the arrhythmia and the angina pectoris on the one side, with negative valvular and renal findings on the other, the diagnosis of chronic fibrous myocarditis, or at least myopathic inadequacy, seems the probable one. The stenocardiac and cerebral symptoms may suggest atheromatous changes in the coronary arteries. Regarding the treatment, digitalis in no wise relieves the cardiac insufficiency, a fact which speaks for myocarditis and against a valvular lesion. Rest alone improves the action of the heart.

CASE II. ANEURISM OF THE AORTA. COULD NOT LEAVE HIS BED.

I have here the sphygmographic tracings of the two radial arteries. This obvious case of aneurism is interesting in connection with the third case, in which the diagnosis is not so evident.

CASE III. INTRATHORACIC TUMOR.

The diagnosis lies between retrosternal tumor and aneurism in which parietal thrombi are so disposed that no murmur nor pulsation can be observed. The subjective symptoms are those of dyspnea and pain in the right scapula, dating from Christmas last.

Physical examination. The pain points elicited are: orthopnea. Symptoms of bronchial stenosis, head bent forward, the larynx stationery, inspiratory retraction of the intercostal spaces, prolonged inspiration, inspiratory stridor, limited respiratory excursion and rhonchi. Dullness over manubrium sterni, extending three inches to the right of the sternum and two to the left of it. This dullness is separated from the cardiac dullness proper by a zone of relative dullness. The heart is pushed downward and outward, the apex being visible in the sixth intercostal space in the anterior axillary line. The heart tones are pure, unaccompanied by murmurs and not accentuated. There is no pulsation over the tumor, no frémissement. The vocal cords stand apart in extreme abduction and cannot be approximated. The veins in the right retina are engorged and there is right hemicrania. The veins of the

right half of the head and trunk, and those of the right arm, are enlarged. The right radial can scarcely be felt, and the sphygmograph shows the disparity between the right and left radial pulse. The hemocytometer shows no leucocytosis.

Literature contains instances in which aneurisms, lined with parietal thrombi, do not pulsate, give no murmur nor frémissement. Dr. Ehrmann, of the Cook County Hospital house staff, intends to make two cases of this character, which we observed together, the subject of a future paper.

2818 INDIANA AVENUE.

A CASE OF ACTINOMYCOSIS.

By E. LYMAN BROWN, A. M., M. D., CHICAGO.

A. T., was born in Austria, in 1846. Family history negative. When a boy he learned the tailor trade, and later worked in a carpet factory. In 1888 he came to Chicago. One year he worked at bricklaying and the next as an iron molder. The last three years he has been working in a machine shop. He has never lived on a farm or had anything to do with animals. I first saw the patient at his home on the 11th of August, when he gave me the following history :

About a month before he had been seized with a violent pain in a defective tooth. The pain, which was of a lancinating character, soon spread all over the side of his head. In a few days a swelling was noticed about one-half of an inch below the left angle of the mouth, which rapidly enlarged to the size of half an egg. He became unable to work and took to bed within one week from the outset. By the advice of a neighbor he applied a hot flaxseed poultice, which in a few days caused the abscess to open externally. Considerable pus was discharged and a running sore remained. He then went back to work wearing a bandage.

Ten days later a second, and later a third small tumor appeared just below and a little posterior to the first. When I saw him August 11, these two had been treated by flaxseed poultice for over a week, but had not opened. I found him in bed, though able to sit up; he was weak from lack of food for he had been able to swallow nothing except liquids for some days, and even swallowing at all was painful. His pulse was weak and quick and running at 98. His temperature was 100.6°.

On examination I found just below the left angle of the mouth a running sore, much raised and red. Below this were two larger swellings more or less coalescing with the first. Neither of these were open, though they were evidently filled with pus as was shown by the fluctuation. The patient complained of no pain except on moving or pressure. There was no enlargement of the neighboring glands discernible.

These tumors were surrounded by a reddened area of induration which extended upward to the malar prominence, backward beyond the angle of the jaw, downward well onto neck and over an inch to the right of the median line of the chin. The pain and difficulty in deglutition showed the tongue and pharynx were also swollen.

From the location, lack of pain and absence of lymphatic enlargement, I believed it to be a case of actinomycosis. But as I had never seen a case of it, I asked Dr. S. P. Black to see the case with me. He promptly confirmed my diagnosis, finding in the pus plenty of the little yellowish gray granules so characteristic of the disease.

Under the microscope these showed plainly the radiated structure of the ray fungus. Acting on Dr. Black's advice I opened the abscesses and for a week washed them out daily with peroxide of hydrogen and perchloride of mercury; and at the same time gave him iodide of potassium in doses of ten to fifteen grains. As I could not see him regularly I did not try to get the full physiological effect of the drug.

After the first week he was able to walk out around the house; and two weeks from the beginning of treatment he went to work. The area of induration had largely disappeared; only one tumor remained, the lowest one, about an inch long by one-fourth of an inch high.

Meanwhile the pain in the tooth returned and he had it extracted at the dispensary without my knowledge. This left an internal opening for two days when it closed.

There was now no trouble in eating and the patient was gaining in flesh and strength. The patient ascribes the trouble to the draught of cold air from a window in the shop near which he works. He denies eating uncooked meat of any kind, but says he always took bologna sausage for his noon lunch. The patient has been working steadily since August 27. I attribute his improvement to the iodide of potassium treatment.

THE
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Journal of the Chicago Medical Society.

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Society Proceedings.

CHICAGO MEDICAL SOCIETY.

Regular meeting, September 3, 1894.

In the absence of the President, Dr. J. B. Hamilton was called to the chair.

The Committee on Membership reported favorably on the application of Dr. J. W. Walker, and on motion, the Secretary cast the ballot of the society for his election.

The applications of Drs. A. H. Ferguson, Norman Kerr, E. C. Ingals, R. W. Sievers, and E. M. Brown were read and referred to the Committee on Membership.

Dr. BYRON ROBINSON reported

ONE HUNDRED CASES OF ABDOMINAL SECTION, WITH SIX DEATHS.

The operations were performed for removal of the appendages, for femoral and inguinal hernia, for appendicitis, for gallstone, for abdominal hysterectomy, for vaginal hysterectomy and for appendicular peritonitis. Twenty cases came under Dr. Robinson's new operation which consists in tying the uterine arteries as they course through the broad ligament. This operation checks the growth of myoma, it checks hemorrhage, lifts the uterus and stops menstruation. The results following the operation have been uniformly excellent. The causes of death were: First, suppres-

sion of the urine ; second, pulmonary embolus ; third, sepsis after the removal of a sixty pound tumor ; fourth, ectopic pregnancy in which death was caused by hemorrhage, there being four quarts of blood in the abdomen at the time of operation ; sixth, a case which was hopeless from the beginning. Dr. Lucy Waite performed 20 of these sections, but being assisted by Dr. Robinson in each case they were included in the series. The operations for hernia were performed according to Halstead, Bassini, Marcy and Fabricius. There were three cases of hernia out of the one hundred sections two years afterward. There were three cases of tender stumps from the ligatures. The ligatures used were linen thread, silk and kangaroo tendon for tying off the appendages. The abdomen was closed by means of the kangaroo tendon, or silk worm gut. No cases were selected and none were refused operation, but they were taken in the order in which they came.

In perhaps a score of the cases the incision was made on one side of the linea alba, with the hope of a better union, but Time must tell its own story in that regard. The after life of these patients, which has extended over two years, in the large majority of the cases has been useful and comfortable. A few of the cases have presented fistulae and a kind of neurosis which has lessened their comfort and usefulness to some extent. In this series Dr. Lucy Waite performed one operation for so-called hysterio-epilepsy, in a girl of twenty-two, and ten months afterward she was reported to be perfectly well and able to work. Before the operation this patient had required an attendant at every menstrual period, and sometimes had a dozen fits in a day. This was the only case in the one hundred sections where operation was done for hysterio-epilepsy.

Dr. H. T. PATRICK : I believe Dr. Robinson reported the cure of uterine neurosis by ligation of the tissue close to the uterus. I would ask what he understands by uterine neurosis and how he accounts for the cure ?

Dr. W. S. MACILL : I would like to ask if the conclusion that there is often infection of the peritoneum through the appendages by the gonococcus is based on bacteriological research ? For two years I followed this line of investigation in the clinic of Professor Terrier and when I left the work was taken up by Dr. Morax who has recently published a paper on the subject ; his conclusion is the same as mine, that it is very difficult to detect the gonococcus in these cultures, the number of cases is limited in which positive proof is found of the presence of the gonococcus.

In regard to always keeping the patient in bed three weeks we considered this question very carefully and decided otherwise. It seemed to the surgeon with whom I was associated and to me that the sewing of the abdominal cavity is an exact solution of the time the patient should be kept in bed. When the cellular tissue and skin were included in a single suture, abdominal hernia was frequent if the patient got up too soon, but with the deep suture, in three layers, first the peritoneum then the muscular tissue with its sheath, and finally the skin, in a series of about four hundred cases there was only one abdominal hernia.

The subject of abdominal fistula was closely studied by Hartman at Hopital Bichat, Paris, during five years' practice and he came to the conclusion that the fistula was due to a neglected silk thread, which originated the fistula, or to a small thread that escaped from the iodoform gauze in making drainage. He found that in all cases where this drainage was suppressed that he had not a single case of abdominal fistula. In one case where drainage had been used, after about seven months of continued fistula a piece of iodoform gauze about six feet in length was eliminated. This coincided with his previous experience.

Dr. BYRON ROBINSON, in closing the discussion, said: In answer to Dr. McGill I would say that I kept the silkworm stitches in the abdominal wound for at least three weeks, as I do not believe these wounds heal strongly under three weeks. We have followed the method of keeping the patient lying on the back for three weeks after laparotomy, for years, and have found it to give good results. Drainage was used in two conditions, first, in pus cases, and second, for hemorrhage. The drainage tube, even with very small holes, allowed the gut to insinuate in three cases. In two of the cases the gut had to be ligated, and in one we broke the glass tube in order to release the strangulated gut. We now use an aluminum tube, with small perforations on the side, and the nurse is directed to turn the tube around in the same direction at every dressing. We only know of two fistulae continuing at the end of two years, out of the hundred sections, and these were cases known to be affected with gonorrhea, and one with syphilis also.

PRESENTATION OF SPECIMEN.

Dr. CARL BECK: This specimen is a carcinoma of the cecum that we removed a few days ago, and which is pathologically very interesting. The man from whom this specimen was taken is sixty years old. For a long time he has had no other symptoms

except a constant diarrhea and slight attacks of fever, which led the physician attending him to believe that he had a case of typhoid fever. On my examination I found a tumor, very small, but still distinct enough to be recognized, in the cecal region. It was hard, immovable and apparently the shape of the cecum. Inasmuch as vomiting and dilatation of the ileum indicated intestinal obstruction I recommended an operation, which was done, and we found a carcinoma of the ileo-cecal valve just large enough to obstruct the intestines, so that we could not push a small lead pencil through it.

The pathological interest of this specimen lies in the condition of the appendix, which was removed at the same time. It was entirely solid and free, but on the ostium intenum of the appendix there were papillomatous granulations which indicated that there had been an inflammatory process present. I had the appendix examined, there was no lumen whatever, it was a case of so-called appendicitis obliterans therefore.

This carcinoma, as is usual in places like the ileo-cecal valve or pylorus, is scirrhus, with very little cellular infiltration. As the mesenteric glands, which were removed, were not infiltrated to any extent I think this man will probably be free from a recurrence of the tumor for a longer period. For the approximation of the ends we used the Murphy buttons, side to side anastomosis. The man has done fairly well so far, ten days after the operation.

The remainder of the programme was deferred to the ensuing meeting.

On motion, the society adjourned.

JUNIOUS C. HOAG.

A regular meeting was held, September 17, in Commandery Hall.

President Senn in the chair.

The minutes of the preceding meeting were read and approved.

The committee on membership reported favorably on the applications of Drs. E. C. Ingals, Marine Hospital, Norman Kerr, 108 East Chicago Avenue, E. M. Brown, 821 West Harrison Street, and A. H. Ferguson, 34 Washington Street, and on motion the Secretary cast the ballot of the society for their election.

The applications of Drs. W. C. Raymond and Ada M. Phelps were read and referred to the Committee on Membership.

Dr. ARTHUR R. EDWARDS reported cases of mediastinal tumor myocarditis and exhibited the patients. See page 248.

Dr. D. L. BROWN, by invitation, exhibited

A CASE OF ACTINOMYCOSIS.

In connection with this case Dr. Stanley Black exhibited a slide showing the actinomyces.

Dr. G. KRIEGER read a paper, see page 242, entitled,

FURTHER NOTES ON SPERMINE,

and exhibited a patient.

Dr. CLARKE GAPEN: The particular phase of the subject Dr. Krieger has alluded to has not received from me the attention it deserves. I have made no trials of spermine in the treatment of nervous diseases, but it is my intention to make a systematic trial of this remedy in conditions of nervous exhaustion, especially those neurasthenias that take the form of mental derangement. I would ask Dr. Krieger in closing the discussion to give his method of using spermine, and the best source from which to obtain it, as I wish to make a trial of it on rather a large scale.

Dr. D. R. BROWER: My experience with spermine has been limited. Shortly after Dr. Krieger read his former paper I expressed a wish to try it. At the time I had at St. Joseph's Hospital, an exceedingly bad case of chorea of two or three year's standing. Dr. Krieger kindly furnished the material, and a number of injections, I should say a dozen at least, were given the patient, but in that particular case we saw no benefit from its use, but as I say the case was an extremely bad one having resisted all the ordinary forms of treatment. It was such a case as I have time and again seen benefited by the hypodermatic use of arsenic, but in this case that drug entirely failed and the patient left the hospital unimproved. With the Brown-Sequard testicular fluid I have had some experience. I have used the preparation in some cases of locomotor ataxia, epilepsy and neurasthenia. I have used it side by side with the phosphate of sodium, and it has occurred to me that whatever benefits this preparation may have is due to the phosphates it contains, although the doctor's explanation of the action of spermine is altogether different and exceedingly ingenious and may be correct. In several of these cases I tried the phosphate of sodium side by side with the testicular fluid, and if there was any advantage I think it was in favor of the phosphate of sodium, and I quite endorse the observations of those gentlemen who have suggested this remedy as a substitute for the animal compounds. One of our most striking cases was one of spinal sclerosis that had passed as was supposed into the

paralytic stage. It seemed to be a case that was past any sort of benefit from remedies, but the use of the phosphate of sodium I am sure gave that man a start toward improvement, and while he is not well, he is no longer bedridden. In this case we tried for a time the Brown-Sequard testicular juice with scarcely any benefit. I am very glad to have heard Dr. Krieger's paper, and I shall take pleasure in pursuing some experiments with spermine. This boy he has presented to-night with chorea of two or three year's standing, to be improved to the extent he has been by half a dozen injections is certainly very remarkable, and I do not think the effect can be explained by suggestive therapeutics, but I think it shows that the remedy is of value. Of course there are some cases that will not yield to anything, and I am inclined to think the case we experimented upon at the hospital was of that sort. I think this is due to an organic change in the brain that spermine nor anything else probably will ever remove. I wish personally to thank Dr. Krieger for his contribution to the therapeutics of this disease.

Dr. BOERNE BETTMAN: I do not intend to make any statement about the action of spermine because I have had no experience with it, but I rise merely to corroborate the statements made by Dr. Krieger as far as they have reference to the history of this little boy. He came to me several months ago suffering from chorea. Whether it was a case of hysterical chorea or so-called chorea minor, I do not know. I learned from his mother that he had been suffering from the trouble for some time, and he certainly manifested all the symptoms of chorea at that time. Thinking probably it might be due to some error of refraction I placed the boy under the influence of hom-atropine and succeeded in establishing a hypermetropia of about two and one-half dioptries. It is an interesting fact that during the time he was under the influence of hom-atropine, his mother noticed that the choreic symptoms decreased markedly, and thinking that probably the chorea was reflex and due to spasm of accommodation, I kept him under the influence of atropine for a week or two, and at the expiration of that time he returned to my office without having further improved, although while under the influence of the mydriatic the symptoms did decrease somewhat. I then gave the boy a correction of about one and one-half dioptries. He came back in a week without having improved and he was then sent to Dr. Krieger. After a few injections of spermine he again came to my office, and was then in the condition you see him this evening. Since then I have heard from

the father that the child has discarded his glasses. There has been no reappearance of the attacks of chorea.

Dr. H. T. PATRICK: I hope Dr. Krieger will not detract from the value of his paper by failing to give the symptoms of this case more in detail when it is published. From his statement we do not know whether it was hysterical chorea or the ordinary chorea minor, and anybody hearing or reading the paper could say that it was not proved to be a case of chorea at all. I simply call attention to this omission that the value of the paper may be increased.

THE PRESIDENT: I will ask Dr. Krieger when he closes, to explain to the members of this society the difference in the action of spermine and nuclein.

Dr. C. G. KRIEGER in closing the discussion said: In regard to the question of the President I will state that I have not had experience in using nuclein. From a chemical standpoint it is altogether different from spermine which has a certain formula and is uncomplicated, while nuclein has no formula at all to my knowledge, or at least a complicated one, so I do not know how I could make a comparison between nuclein and spermine. With reference to the dosage, I generally start with small hypodermic doses of the solution of spermine, about seven to eight minims for an adult, and for a child three to four minims, gradually increasing to the full dose which is fifteen minims for adults, and eight to ten minims for children. I first give one injection every day, and if I see quite an effect from it I usually give one injection every other day for two or three weeks or longer. As a rule I discontinue the treatment after the tenth or twelfth injection to see what effect it will have.

Dr. J. A. LYDSTON read a paper, see page 232, on

TOXIC AMBLYOPIA.

Dr. A. H. BURR read a paper on

TUBBING MADE EASY IN TYPHOID FEVER.

In connection with his paper Dr. Burr exhibited an ingenious portable bath devised by him. See page 227.

Dr. J. M. PATTON: There is no question that the statistics obtained by the Brant treatment are much below those given by any other method. I have seen a patient who was unconscious, with involuntary passages, placed in a tub of water at a temperature of 68°, with water at a temperature of 65° poured over the head, remain in the bath about fifteen minutes, come out perfectly

conscious and go to bed and sleep for three hours as quietly as could be. One point in the doctor's paper is that the effect is not to be attributed to the reduction of temperature. The bath is not to be administered solely for the purpose of bringing down the temperature although reduction in temperature is a guide as to how long the patient may remain in the bath. The effect is undoubtedly due to the stimulation of the nervous system and elimination. Personally I would not be so radical as to say that this treatment should be adopted to the exclusion of all other methods, there I would disagree with the author of the paper. We must take into consideration that the statistics of Brant, and even those of Baruch in this country, were made up from a series of cases entirely different from the patients we see in private practice in this city. Brant's cases were nearly all hospital patients, taken from the German army, men who can stand pretty nearly everything. Baruch's were taken from the Philadelphia Hospitals, and nearly all hospital cases are different from those we see in private practice. We must take into consideration the degree of cold a patient will submit to.

A short time ago I saw a typhoid fever patient who had a temperature of 102° when the physician first saw her. He put her in a bath of 60° and her temperature went to 103° , he put her in an ice pack and her temperature went to 104° . Then he covered her nearly all over with ice and her temperature went to 105° . At that time I saw the patient and administered a hypodermic of morphia and let her rest during the night, the next morning her temperature was 101° . She was then treated by tepid sponges at a temperature of about 80° and passed through the ordinary course of the fever. That illustrates the fact that the patients we see here are not, as a rule, able to bear low temperatures, and my experience in private practice is that we can get along just as well with tepid spongings at a temperature of from 80° to 70° , according to the patient, repeating the spongings as often as necessary. I do not dispute the fact that tubbing is more efficient and will perhaps stimulate elimination better, but I do maintain that on account of the class of patients these statistics have been made from and the inability of many of our patients to bear a low temperature physicians will be often restrained from using this method in private practice.

Dr. J. C. HOAG: I think there is no doubt but the treatment of Brandt is coming gradually into vogue in this country, but I also have no doubt that there are a great many patients to whom the

method is not applicable. I have seen patients whom I thought had been made worse rather than better by this method, but as a rule, I think the treatment is good.

Dr. Burr has devised an extremely useful apparatus, a great deal of ingenuity has been devoted to the idea of arranging a convenient tube. We constantly see accounts in the medical journals, of very complicated apparatus that certainly cannot compare with this in utility and convenience.

Dr. J. M. DODSON: I would call attention to the fact that there is now to be found in many households in the smaller towns a rubber bath tub which can be used for this purpose. Some ten years ago I exhibited such a tub before the Wisconsin State Medical Society, and in a paper on Hyperpyrexia, suggested its use in typhoid fever as a substitute for the cumbersome, and often inaccessible wood or metal tub. It has the disadvantage that the rim is not detachable, but as the rim is only two inches wide it can be placed under the patient almost as easily as the rubber sheet. It is possible that such a tub might be found where this device was not to be had. I endorse heartily what Dr. Burr has said of the inconvenience, discomfort and often danger of lifting the patient to and from the metal tub. This ingenious device makes that unnecessary.

Dr. H. B. FAVILL: When a student I did considerable bathing of patients. The cold bath certainly will reduce temperature, especially in those people who have been used to bathing for cleanliness, but all physiologists, I believe, agree that the cold bath does not reduce the temperature so quickly as the tepid bath followed by cold water. That I had the pleasure of demonstrating at St. Joseph's Hospital four or five months ago. And in Cook County and Mercy Hospitals where I worked as a student, there were frequently cases the temperature of which would not go down on the application of cold packs, but when we used tepid spongings immediately followed by cold the effect was remarkable. It has been found that in sunstroke by putting even strong men into very cold water the internal temperature is raised, but by using tepid water and gradually lowering the temperature the contraction of the *erecti spini* muscles is stimulated, the congestion of the periphery is not interfered with, and the heat is consequently given off in much larger quantities and much shorter spaces of time, and with much less shock. I believe that cold baths in this country are the same as anywhere else. As to the cold bath the statistics are slightly colored, or at least it would appear so from the experi-

ence we have had, and if we can believe physiologists in regard to the healthy body we can believe them also in regard to this.

Dr. CLARKE GAPEN: I would ask Dr. Burr in closing to give us two or three facts for guidance in regard to this matter. I have followed this line of treatment for a number of years and am a strenuous advocate of it, although I have found some cases that were rebellious to the last degree. It is not a month since I had a typhoid case where this method could not be used. The patient was, however, a very delicate woman and it seemed to me that the failure in that case was due to the fact that there was hardly vitality enough to secure reaction. The success of this treatment depends wholly upon the reactions, if the vitality is so low that reaction is practically impossible it is dangerous to use it. I would ask Dr. Burr how low a temperature he feels it safe to use, how long he feels it safe to continue the treatment, and how frequently during the twenty-four hours, also where this apparatus may be obtained, it strikes me as being exceedingly ingenious and I should like to use it. Another word with regard to the treatment of these cases; things come and go and we are apt to think a thing is new when we see it for the first time. Away back when Cook County Hospital was located on Eighteenth and Arnold Streets, we used to see some of the worst cases of typhoid fever that have ever been developed in this country, not only in the hospital but in the vicinity around, and I remember that as a young practitioner I had remarkable success with the cold pack, which I take it is not practically different from this line of treatment. When I went out into general practice I attempted to introduce the pack into the treatment of these cases, and in the first case where I attempted to use it I was promptly discharged, the patient died and I got the credit of the death. This was to me a decidedly deterrent experience, and I have no doubt others have been deterred in the use of this treatment by similar experiences. Many people don't believe in it, they are afraid of it, and moreover, I think there are cases in which it is absolutely impossible to use the cold pack with any success whatever. There are individuals to whom cold water gives a violent and dangerous shock, and there are others to whom it is a stimulant. I remember reading not long ago that the Norwegian poet, Bjornsen, makes it a habit to go in midwinter, take a shower bath in a cascade that is running over icicles. I am confident that would kill me, although I am a vigorous man. I think the guide in these cases is the possibility of securing a reaction.

Dr. E. B. KEYES: No one can have listened to the paper of Dr. Burr without being profoundly impressed with his conviction of the utility of this treatment. I submit, however, that it is unfair to Dr. Burr and the illustrious people to whom he is the exponent, to subscribe fully to his doctrine and its theory and practically to compromise on tepid sponging. To my mind the two therapeutic measures are not comparable in any sense, and it seems to me that it is utterly foreign to this important subject to discuss tepid sponging, except it be in such a degree as none of us would consent to use as a rational therapeutic means. Personally I have very little confidence in tepid sponging, I have more, perhaps, in the cold pack. I wish to emphasize the contention of Dr. Burr that the cold bath is a thing *sui generis* and not in any sense an extreme effort of which tepid sponging is a mild degree. Tepid sponging is an altogether different therapeutic agent and as such should be discussed and accepted or condemned.

With reference to Dr. Patton's statement that patients in this country are different from the class of patients from whom these statistics were taken, I can hardly agree to that, although there is a difference in the general classification of patients there is no rational ground for saying that physiological activities are essentially different. Of course these therapeutics should be adjusted as far as possible to individual cases. Why we have not done much in this country is because a very large number of cases of typhoid fever are mild and recovery is almost certain to result. In that proportion of the vast aggregate in which recovery does not occur, we find ourselves in deep water before we know it, we frequently find we have gotten into the depths of a severe case before we fully comprehend the fact, and at this juncture we are rather afraid to initiate heroic and radical measures of this kind.

Dr. N. S. DAVENPORT: I am much interested in this discussion and look with favor upon both tubbing and the sponge bath in typhoid fever. Each method has its merits and its proper application. I do not think, however, that tubbing should be practiced to the exclusion of other methods, and the conservatism shown by some of the gentlemen who have spoken seems to me reasonable.

In the medical profession, perhaps, more than any other must sound judgment and careful discrimination be exercised.

Dr. A. H. BURR, in closing the discussion, said: It seems to me that it should not be necessary for any one to have to stand up here and defend the Brandt method of treating typhoid fever. It is not a recent innovation. Brandt wrote his treatise thirty years ago

and since then we have had the convincing statistics of those who have been won over to him, such as Voight, Vogel, Leibermeister, and so on in the old country, and hosts of friends in this country. Ever since his dissertation and the confirmation by these eminent people this method has met with prejudice all the way along, I might say by a mental hydrophobia. I used to be told by a facetious neighbor when I was a child that bran and sawdust was excellent food for cows," but, said he, "the more bran you get in it the better."

It has been demonstrated by treatment in practice and in hospitals that the further away you get from the Brandt method the poorer your results will be, and the closer you stick to the Brandt method the better will be your results. If you have not had good results from this method the mistake has been, perhaps, in reducing the temperature, with the idea that this was all in all. While watching the thermometer in your patient's mouth you may have kept your hands off him until he is blue in the face and shivering throughout the body, and then you give it up as a failure. Less heed to the thermometer, and more heed to the stimulation of reflex nervous forces, by diligent and constant rubbing while in the bath will win the day.

In regard to Dr. Gapen's questions, I may say that the temperature which has been given as the limit by Brand himself is 65° ; 68° is given by some and 70° by others. The length of time in which a patient is allowed to remain in the bath is fifteen minutes as a rule, but the patient is to be removed whenever there is evidence of lack of reaction on the surface. When he becomes livid at the lips or begins to have chattering teeth, it is time to take him out, give him a good rubbing, warm him up by hot bottles to his feet and administer an ounce or two of brandy in water. As to the number of treatments in twenty-four hours, that would depend upon the condition of the patient. If there is delirium and the active nervous symptoms that characterize typhoid fever, I should say once in three or four hours, as often as these indications are present. I recently read an article in the *New York Record*, by W. Gilman Thompson, of New York City, who makes the statement that in the Brand system of treating typhoid fever the typical typhoid condition is almost always absent if the treatment is commenced early. And in the results of many observers fatal cases are not known where this treatment is instituted in the beginning. Brand gives 1,223 cases with a death rate of twelve.

None of these twelve patients were treated until after the fifth day; all the others recovered.

The conception of this tub came to me in my efforts to treat a case where the conveniences of a tub were not good. The patient was a young woman of eighteen, with a temperature of 105.6° . On my first visit I commenced with this rubber sheet; first rolling up blankets and placing them along each side the patient and laying the rubber sheet over them. Thus I made a trough into which I could practically pour two buckets of water. I thought if I could make a folding, portable arrangement that would with the sheet form a tub in the bed, and could be set away quickly, and avoid handling the patient, it would be a desideratum and render the use of the bath practicable in those homes where under present circumstances it seems to be almost impracticable. I want to impress upon you the fact that you are laboring here to produce shock, and where you have a high temperature, I do not care how feeble the patient may be, I cannot conceive of water at 68° doing any harm. One gentleman spoke of the good effects of using tepid water first and then cold water, giving as the reason that the warm water quickly stimulates the cutaneous vessels and warms the skin. Cold and heat are relative terms. If you have your patient warm externally, the skin soft, the arterioles dilated, the vessels open by the warm bath first, that only intensifies the Brandt method when the cold water is applied. I have no objection to that. What we want is reflex stimulation and we get it by these cold douches and sprays. If you have a delicate child or woman you may begin this measure as gradually as you want until you conduct your patient to the full Brandt method. You can lay a sheet over the patient and begin spraying with a temperature of 90° , gradually lowering that, as we did to-day at Michael Reese Hospital. We commenced with a temperature of 90° , brought it down to 80° , and finally put in chunks of ice until we brought the temperature down to 70° , and the patient did not make very much fuss about it. They all complain some, but you are not treating the feelings of your patient, you are treating his disease, and if your results are admirable that is all you can desire.

Dr. HUGH T. PATRICK, see page 236, exhibited the

CASQUE VIBRANT.

The resignations of Dr. D. M. Appel and J. L. Hillmantel were tendered and accepted by vote of the society, which also expressed regrets and best wishes for the retiring members.

HEALTH COMMISSIONER REYNOLDS, requested that the society appoint a committee to consider his plans for the Hospital for Contagious Diseases to be built by the city. Dr. Reynolds also requested that the President be a member of this committee. The President then appointed the following gentlemen to serve with him, viz.: Drs. Hoag, Brower, Etheridge and Murphy.

There were seventy members and visitors in attendance. On motion, the society adjourned.

JUNIUS C. HOAG, Secretary.

THE CHICAGO PATHOLOGICAL SOCIETY.

A Regular Meeting of the Chicago Pathological Society was held in the Laboratory Building of Rush Medical College, Monday evening, Sept. 10, 1894.

President Hall in the chair.

The Secretary read the favorable report of the Censors on the applications for membership of Drs. I. W. Brown, A. D. Bevan, E. F. Gavin, Chas. A. Parker, E. L. Moorhead, S. G. West, Henry B. Favil and V. A. Latham. On motion, the Secretary was instructed to cast the unanimous ballot of the society for the election of these candidates.

The committee on publication of the society proceedings reported propositions from THE CHICAGO MEDICAL RECORDER and the *Journal of the American Medical Association*. After some discussion the matter was referred back to the committee for further investigation, with instructions to report at the next meeting of the society.

The Treasurer reported \$250 in the treasury.

On motion of Dr. Graham the Secretary was instructed to buy a dissecting set containing three or four instruments, for the use of the society at its meetings.

Dr. J. D. SKEER exhibited, see p. 246,

A NEW SURGICAL SAW.

Dr. D. W. GRAHAM: I think this saw embodies an idea that will be of practical service in selected cases of exsection of the knee joint. The concavo-convex incision which Dr. Skeer has described originated with Dr. Fenwick, of Montreal, over twenty years ago, and has been practiced by him and a few others since that time. At various times in the past there have been proposed

a number of irregular or angular methods of cutting the bones in this operation, but the circular incision is superior to them all, chiefly because it is more economical of bone. In this respect it is superior to the usual straight incision. The object of all these methods has been to avoid the use of any foreign material within the joint for the purpose of fixation, or at least any unabsorbable material. I would advocate the circular section of the bones, and would advocate this saw as being much superior to the scroll saw that has hitherto been used. The danger of pockets forming in the bone, which has been mentioned as an objection to this method, I do not believe is greater than in the ordinary square incision.

The case Dr. Skeer mentions in which the saw was used demonstrated the perfection of the incisions of the bones, but on account of the unexpected extent of the tubercular disease in both bones no vestige of the saw lines remained after the foci were all curetted as would have been the case with any other kind of a saw which might have been used.

Dr. A. B. STRONG: I would suggest that the saw be made even a little wider. If the saw is very narrow, and you have to follow up into the bone on one side and make a corresponding concavity on the other, the parts would not fit so accurately. But actual trial on the living subject is the way to determine the usefulness of the saw. Its chief excellence is that it prevents rotation, one of the things we have to guard against, and if it did nothing else I should think the doctor had made a useful instrument.

Dr. J. M. DODSON: I confess I am at a little loss to understand the advantage of a curve cut of this kind over a simple angular cut made at a very obtuse angle. The amount of tissue that would be saved in the close coaptation of the tibia to the femur by this cut over an angular incision would be very slight. It seems to me that if an angular cut were made in the lower end of the femur, with a corresponding cut in the tibia, the disposition to rotate would be obviated more completely than by a curved cut. I understood, or perhaps misunderstood, Dr. Skeer to say that the incision should be made at right angles to the axis of the limb. I take it, of course, that the effort should be to preserve the original angle of the leg to the thigh, and therefore the incision should be made parallel to the lower surface of the femur and upper surface of the tibia irrespective of their axes so as to preserve the normal angle of from 10 to 15 degrees. It strikes me that if in coaptation it is necessary to use absorbable material, bone or ivory staples

might be used, as bone pegs are quite firm enough to hold these bones together and they could then be buried under the soft parts and allowed to take care of themselves.

Dr. F. A. MCGREW. It seems to me the chief value of this method of performing resection of the bones lies in the prevention of sliding of the bones upon one another. That is the greatest difficulty with which we have to contend. Of course all different methods have been tried; the bone has been severed at various angles, and many surgeons have used this method, but so far as I know the concave saw is original. The difficulty of making concavo-convex surfaces fit each other has led most surgeons to do the simple operation, that is to make a straight incision of the bone. I believe most surgeons do that to day, but if this saw can be readily adapted, it seems to me that it will be of considerable advantage in resections. The only point that strikes me as difficult is adapting a single saw to various sized bones. It would be necessary, of course, to know exactly the angle at which to enter the saw in order to make the exit at the right point, that is the two points, posterior and anterior must be in the same arc.

Dr. J. M. PATTON: As far as getting two cut surfaces to perfectly coapt is concerned, it seems to me this is superior to any saw used up to this time. I presume the chief object in making the sections is to get the surfaces to coapt and then they won't slide. I have seen this tried in cutting pieces of wood, and the beauty about it is that if it is started right it takes care of itself; you cannot cut half way through the bone and then spoil your section. As to using one saw for different sizes of bone, that is not necessary; a man can have saws of different arcs and widths made to fit into one handle.

Dr. J. D. SKEER, in closing the discussion, said: We cannot rotate these bones, locked and held in position as they are by these staples driven into the compact tissue, without using a great deal of force. In all cases of excision of the knee joint, especially in children under twenty years of age, we should preserve the centers of ossification if possible, so as not to arrest the growth and development of the bones.

You will be surprised to find how easily this saw can be adjusted to the proper angle. Here is a segment of a circle four inches and a half in diameter, which corresponds to the concavity in the saw, which you can place at a right angle to the long axis of the bone and use as a guide, and after you have cut down an inch or so the saw will take care of itself, providing you are careful to

keep it close to the end of the bones. As a matter of course the femur should be cut transversely to correspond with its articular surface, and the saw should be placed on a line parallel to its transverse diameter and kept on that line until it cuts its way through. The same rules should be observed in section of the tibia.

Dr. E. FRIEND read a paper entitled :

TREATMENT OF EXTENSIVE BURNS.

Dr. R. N. HALL: The apparatus described is certainly simple and could be applied in any hospital. The application of this treatment is not new. I had an experience of the kind myself in 1868, when I burned my foot very severely. I tried to sleep, but could get no rest in bed; then I put my foot in water taken from the well and so cold that it was uncomfortable until I had put my foot in and out of it several times, and finally I laid my head on the table and went to sleep and did not wake for several hours. The pain was instantly relieved by the water, and there were no after-effects whatever from the burn, no soreness, no trouble in wearing my shoe and going about my business the next day. I have profited by that experience many times since in the treatment of burns. I would ask Dr. Friend what has been the success in treating burns of large extent? We have been taught by some authorities that burns extending over a certain proportion of the body were bound to be fatal. For instance, if one-third of the area of the surface of the body was burned, that might cause the patient to succumb.

Dr. J. D. SKEER: I remember, many years ago, a little girl burned her finger very badly. She had a little tin cup of cold water that she put her finger in, and played all afternoon with the other children, holding her finger in the cup. She was comfortable while she held her finger in the water, but as soon as it was removed the pain would return. The next day she seemed perfectly well.

Dr. J. M. PATTON: I would ask Dr. Friend if he has any knowledge of the effect of extensive burns treated in this way in producing complications. I have had a little experience in this line, and in one very extensive burn, which probably could have been managed in other respects successfully I lost the patient from duodenal ulceration, which is comparatively frequent in extensive burns, and of the cause of which we have no knowledge. The question came to me whether, by immersion of the patient in

the bath or through the relief of the shock and pain, and possibly some modification of the liability to systemic intoxication, there would have been any effect upon the liability to such a complication.

DR. E. FRIEND, in closing the discussion, said: In the Vienna general hospital they have had a number of cases, with complications such as Dr. Patton speaks of. Still I remember to have seen but one case complicated with duodenal ulcer.

From the cases I saw there I do not contend that the water bed is a life-saving means directly, only in so far as it increases the power of resistance of the patient by lessening pain and preventing infection, and absorption from infection.

In answer to Dr. Hall as regards the fatality of a burn of one-third the body, I would state that the degree of burn and age of the patient would have to be taken into consideration.

Prof. Kaposi classified them as follows:

1. A burn of one-third or even the entire body of the first degree; very seldom fatal.
2. A burn of one-third the body of second degree; in children, frequently fatal; occasionally in adults.

In this connection citing a case of a child with a burn of only the forearm proving fatal.

3. Burns of one-third the body of third degree; frequently fatal in both adults and children.

Just before leaving Vienna one of Prof. Kaposi's assistants working in the chemical laboratory, on the causative factor in deaths from burns, stated to me that the conclusions he had arrived at were that death was not caused alone by the shock, but due to the absorption of some toxic substance into the blood.

(One of the important symptoms of impending death is vomiting during the first three days following the burn.)

I learned yesterday that the Hebra water bed is used quite extensively in the larger cities of the continent.

REPORTS OF CASES WITH SPECIMENS, BY DR. D. W. GRAHAM.

Case I. *Strangulated hernia of the appendix vermiformis.*

This case was that of an elderly woman. When she came under my care there was a swelling in the right groin, fluctuating and red, with every evidence of pus, and a strangulated femoral hernia. I opened down into the abscess, evacuated it and washed it out. I could not find any intestine. The first thing that arrested my attention was a small foreign body, which looked like a piece of chicken bone, with fecal matter surrounding it and very

suggestive of having come from the appendix. On further investigation I found what, on separating it from the surrounding inflamed tissues, proved to be the end of the appendix in the cavity, and with a perforation in it. It was blackened and swollen. A further search showed an old irreducible omental hernia not larger than the first joint of the thumb.

The chief problem to me was how to treat these contents of the hernial sac in the presence of so much pus and suppurating tissue.

It would be counted good surgery I think to have left the appendix and the nodule of omentum just as they were found and treated the abscess cavity as an open wound; but I decided the better plan would be to take a little risk of infecting the abdominal cavity and treat the sac and its contents as if no suppuration had been present. So after thoroughly curetting, trimming and washing all surrounding tissues, I pulled the appendix out and ligated its base in the usual way. The nodule was also amputated and the sac cut off and closed. The cavity was treated as an open wound and no effort was made to close the femoral ring.

The patient rallied from a critical condition and did fairly well for seven or eight days. At this time fearing intra-abdominal suppuration, from a change of symptoms, I opened the peritoneum through the femoral ring and introduced a small gauze drain though no pus was found at the time or later. The patient died comatose at the end of two weeks. The autopsy showed the peritoneum free of infection of any kind, and no pus or inflammation about the stump of the appendix or that of the omentum. The kidneys were found to be very small and the microscope showed an advanced degree of chronic interstitial nephritis.

It is not uncommon to see the appendix as a part of the contents of the sac in nonstrangulated hernia, but this is the first time I have ever found it strangulated, or as the only strangulated viscus.

Case II. *Appendicitis obliterans.*

Another specimen, which is more interesting as a specimen, is this one, which I present as an illustration of what Dr. Senn has recently described under the name of appendicitis obliterans. The distal end is bulbous; oval in shape. I have incised this end, from which pus is now exuding. The proximal end shows a very small lumen. The walls throughout are greatly thickened and dense, and the organ is curved on itself. When found, before removal, the distal end almost touched the base. In this case the obliterating process was going on at the proximal end, whereas in

many it begins at the distal end or in the middle of the tube. I have not examined closely enough to determine whether we have here complete occlusion, that is, whether the walls are completely united at any point, but it is certain we have such a degree of stenosis that the pus cannot be squeezed through the exposed diminished lumen of the proximal end of the specimen.

The term, chronic relapsing appendicitis, which has been used to some extent in the literature of appendicitis, is descriptive of the clinical history of the class of cases of which the term appendicitis obliterans, is descriptive of the pathological anatomy.

My patient's history is a perfect illustration of the class.

A married woman, aged thirty, two years ago had an attack of severe pain, chiefly referred to the epigastrium, with fever, tympanites and vomiting, the pain focalizing in the right illiac region after two or three days. Patient bedfast some weeks. Soreness remained after she considered herself well. Many similar attacks occurred during the next two years; sometimes they were very light and no one was as severe as the first. She estimated the number in the two years at from twenty to twenty-five. Her last attack was when she was seven months pregnant. A miscarriage followed, which was attributed to the attack. Six weeks after this occurred I examined the patient and could easily make out a hard, tender nodule in the cecal region. The local conditions also in this class of cases are very characteristic, and were markedly typical in this instance. A dense mass of adhesions bound the cecum and the appendix together and to every thing around as a result of the repeated attacks of adhesive inflammation. The difficulty of finding the appendix in such a mass of plastic deposit is sometimes very great, but in this case it was increased because the appendix was located directly behind and some distance above the lower end of the cecum. Indeed, at one point in the operation it seemed certain that the appendix was entirely obliterated and had lost its identity in the mass of deposit, and that the nodule, which, before the operation, was thought to be the appendix and which could still be recognized, now seemed like a tubercular nodule or other growth imbedded in the cecal wall. When found, however, it was readily enucleated by a blunt dissection with the integrity of the outer wall of the tube shown in the specimen.

The natural tendency of the pathological process in appendicitis obliterans is toward complete obliteration of the tube and thus to a self-limitation of the disease. But in the anatomical form of it here presented where the obliteration begins on the

proximal side with incarceration of pus distal to it the chances of a natural arrest of the disease are very limited. The indications for surgical intervention therefore would seem to be very clear when the clinical history points to obliterating appendicitis; and in all cases, for there are no means of ascertaining the relatively more dangerous anatomical forms except examination of the specimen itself. The operation will rescue some patients from imminent danger of fatal purulent peritonitis, others from chronic invalidism and all from suffering.

Dr. J. M. PATTON: I would like to ask Dr. Graham whether in the case of recurrent appendicitis he would lay special stress on the fact of permanent soreness between the attacks as distinguishing appendicitis obliterans from recurrent appendicitis which is not obliterating? I have seen a few cases of recurrent appendicitis that had all the symptoms which surgeons say demand operation, and yet which got well. One case had five attacks and got well with absolutely no tenderness that I could discover four or five days after the attack. There would be no swelling and no tenderness between the attacks, and yet the attacks were marked. Would that indicate that there was no obliteration of the canal? What is the element to which we may attribute constant soreness?

Dr. R. N. HALL: I would like to ask if this patient presented any symptoms of pus infection in any other part of the body, either in the color of the skin, condition of the nails, or of the tongue?

Dr. E. FRIEND: I would like to ask if it ever occurs that the appendix becomes completely separated from the bowel itself and possibly forms a nucleus for a foreign body?

Dr. GRAHAM in closing this discussion said: I think the class of cases Dr. Patton asks about are properly called recurrent cases and do not as urgently call for operation in the interval as the class I have been talking about, still I should take the ground that any patient who has had two or three attacks of acute appendicitis is safer with an operation done under favorable circumstances than without one.

Clinically the recurrent case has an interval of clear health generally prolonged, but pathologically it may be the same as the chronic relapsing or obliterating variety from the first and ultimately take on the same clinical features. I have never seen a case where the appendix was detached and lying free except occasionally in a pus cavity.

On motion, the Society adjourned.

GEORGE H. WEAVER, Secretary.

COOK COUNTY HOSPITAL CLINICAL SOCIETY.

Regular meeting August 20, 1894.

DR. TINEN exhibited

A CASE OF ATAXIC PARAPLEGIA.

R. B., æt. 30. About three years ago he felt a numbness of the fingers and toes this year worse during the cold weather, but disappeared when warm weather came again. He suffered no further from this until eighteen months ago, and had what he called nervousness. But nine months ago when he walked a few miles he could raise his feet only with great difficulty. Following this his arms and legs became "numb." Cannot walk well at night; the floor seems higher and softer under the right foot than under the left. When carrying a basin of water he must keep his attention and sight on it constantly or he spills the water. He has very seldom had shooting pains through the lower limbs.

He was a very heavy smoker, one-half pound of tobacco a week. Constant drinker. Had gonorrhea twice; denies chancre. He is a laborer, and always has been. None of his relatives have any nervous troubles. Has suffered from la grippe; also had a surgical operation for varicocle.

Analysis shows no albumen, casts or sugar. Nourishment fair; weighs 150 pounds. Appetite good. Pulse full, slow and strong. Ticking of an ordinary watch is heard six inches. Pupils equal, react to light and accommodation. Tongue freely mobile in all directions. Chest and heart present nothing abnormal. Dynamometer left hand shows 90. Dynamometer right hand shows 72. Abdominal reflexes absent. Cremasteric present. Myotatic reflex much increased; can be demonstrated above patella. He has well marked ankle clonus. Can only appreciate two points when they are four inches apart on legs, thighs, abdomen and chest. At finger tips three-eighths inches apart; lips one-fourth inch apart. Cannot bring finger tip to end of nose; always goes to one side. Cannot touch a fixed point with great toe. Eyes closed. Romberg's symptom well marked. He cannot extend right great toe. When he walks the feet are raised high and put down flat with considerable force; the great toe of the right foot is dragged and catches on the floor. Temp. sense normal. Bladder and rectal functions not impaired.

This patient came to hospital one year ago presenting symp-

toms of a locomotor ataxia. Now he returns for a renewal of the trouble.

CASE OF ATAXIA.

F. O., æt. 34. Three years before admission first time felt numbness in hands and feet; no pain at any time; cannot walk at night; bladder and rectal functions unimpaired; syphilis thirteen years ago; hearing normal; pupils react to light and accommodation. Patellar reflex absent; also absence of all superficial and deep reflexes. Grip of hands feeble; two points appreciated on tips of fingers two-third inches apart, on thumb one-fourth inch. No in-coördination of hands and arms. Romberg's symptoms marked; falls backward; walking the feet are raised high, thrown forward and strike heel first; cannot turn around without assistance. He was given strychn. sulph. grs. $\frac{1}{32}$ t.i.d. and also potass. iodid. t.i.d. He improved rapidly and three months later left hospital and began work. He is a stone cutter. Now one year later he again complains of numbness. Cremasteric reflexes present; all others lost. Dynamometer shows 32 in right and 42 in left.

EXHIBITION OF CHRONIC MENINGITIS.

These membranes were taken from a colored man forty-five years of age who died from purulent meningitis. The membranes are somewhat thickened and the falx cerebri has attached to it three osteomata, two on right side and one on left, all three distinctly osseous and show the markings of surface of the brain. This condition has occurred twice in 200 post-mortems. The etiology and literature in general on the subject is very brief.

A report of three cases of carbolic acid poisoning was read by Dr. McGrew.

EXHIBITION OF CASES BY DR. WALKER.

CASE 1. ATAXIC PARAPLEGIA. Age sixty-six. Began six weeks ago with pain in legs and difficulty in walking; sensation normal; reflexes much exaggerated; cannot stand with eyes closed; some ataxia in arms; walks with a shuffling gait and a wide base; no ankle clonus; no rectal or bladder symptoms; annulae seniles present and atheromatous radials.

CASE 2. TRISMUS. A carpenter, aged twenty-eight, stepped upon a tack and received a punctured wound of the heel six days ago. Twenty-four hours later trismus was present and had persisted, but no other symptom of tetanus had developed. The masseter muscle could be felt relaxed; wound in foot healed; scar

painful on pressure. Dr. Walker regarded it as rheumatic in origin, the previous injury being a coincidence only.

CASE 3. SPONDYLITIS. Age thirty-seven. Sickness began three and a half years ago with pains in side and back, more recently pains in thighs and knees; has now marked nervous symptoms; spasmodic jerking of legs; Romberg's symptom, and an excessive ankle clonus on both sides; fibrillary muscular contraction frequent; thermal sensation normal; patellar reflexes are present; no eye symptoms; prominent bulging of the eighth, ninth and tenth dorsal vertebra of which patient was unaware until coming to the hospital.

CASE 4. PSOAS ABSCESS. Age thirty-three; spondylitis twenty years ago; is now much deformed, having marked kyphosis; old scars over spine; for one or two years has had distressing gastric symptoms periodically with no apparent etiology; vomits but is not nauseated. Palpation reveals a rounded tumor about the size of an orange in the right inguinal region; temperature usually 99° F. No tenderness over spine.

CASE 5. HEART CASE. Age twenty-seven; female; past illnesses, scarletina and typhoid; present illness began nearly two months ago with cough, hemoptysis, night-sweats, anorexia, loss of weight, and marked dyspnea; some dullness present in apex of left lung; a diastolic purring thrill felt over precordia; over sternal end of second left intercostal space a loud harsh murmur commencing immediately after or with the first sound, and audible in the carotids. Dr. Walker said he was uncertain about the origin of the murmur, and asked for opinions upon the case.

• EXHIBITION OF CASES BY DR. OCHSNER.

CASE 1. HEART CASE. German, forty-nine years old, male; family history, negative; habit, good; previous illnesses, none, except typhus fever while in Turkey thirty years ago; no venereal history nor any history of rheumatism.

Present illness began two years ago after a severe fright, being aroused at night by burglars. Did not notice any particular trouble for six weeks, when he noticed a severe pain in the region of the heart. Since then has noticed difficulty in breathing when lying prone in bed.

Present condition. He is well nourished and apparently vigorous, but complains of a good deal of difficulty in breathing. The area of cardiac dullness is enlarged over the apex. Transmitted to the left is heard a systolic murmur which is rasping in character.

Over the second interspace on the right side is heard a low, double murmur, transmitted upward.

CASE 2. SCURVY. This patient is a Pole, about thirty-five years old, and presents the symptoms of scurvy. He is unable to speak English, and no interpreter can be obtained. While examining him I noticed that the second finger of the right hand was considerably shorter than the index finger and about the length of the little finger. The finger is apparently well formed and the patient has good use of it. As he cannot speak English a history of trauma cannot be positively excluded, but as there is no sign of a scar I was inclined to look upon the case as one of congenital malformation. The three bones of the finger are all present and perfectly developed, but the metacarpal phalangeal joint admits of more than the ordinary freedom of motion. The first phalanx of the middle finger projects further back than do the corresponding phalanges of the other finger, and the place where the second metacarpal bone should be there is a soft portion which can be depressed. Without the history of an injury, I was inclined to look upon the case as a congenital deformity, in which the whole or a portion of the second metacarpal bone has never been developed.

Dr. EDWARDS, in discussing Dr. Walker's Case V., said that he did not consider the murmur an organic one. He found dullness in the apex of the left lung both anteriorly and posteriorly. Rales over the same area. He thought the trouble in the lung had caused a retraction of the lung from over the base of the heart, causing a greater area of heart to be exposed than normal, and he did not think there was any endocardial trouble.

Dr. LE COUNT: I think so loud a murmur could only be heard in case of an endocardial lesion. In cases of suspected tetanus I think the suspected wound focus should always be carefully excised. Cases that have gotten well in this hospital have always done so after complete removal of involved tissues.

Dr. EDWARDS: I do not consider the case as one of tetanus, because it came in so suddenly and so soon after injury.

Dr. LE COUNT: The heart case which Dr. Ochsner exhibited is probably a case of aortic regurgitation and stenosis, caused by sudden dilatation, or possibly by the breaking of a valve. The second case I do not consider a case of congenital deformity, because unilateral congenital deformity is very rare, but I consider it rather a deformity which was caused by a trauma while the bone was still young.

Dr. MCGREW called attention to the general condition of the scurvy patient. Malnutrition takes two forms; in one form it involves all tissues simply as malnutrition, in the other form it seeks out special structures. This is one of the former cases. There are no signs of hemorrhage present, simply malnutrition and enervation.

PATHOLOGICAL SPECIMENS.

Dr. WALKER exhibited a case of advanced fibrous myocarditis. The valves were thickened but no deformity existed. Also a heart showing acute negative endocarditis, and the kidneys and spleen from the same patient showing several large infarcts.

Dr. LE COUNT showed under the microscope two specimens of secondary carcinoma of the liver.

On motion, the society adjourned.

T. P. FINDLEY, Secretary.

Regular Meeting September 5, 1894.

Dr. TINEN in the chair.

Minutes of last meeting read and approved.

Dr. TINEN presented the following case for diagnosis:

P. H., Male, colored, single, age 48; cook by occupation. Admitted to Cook County Hospital August 16, 1894. Family history: Mother had dropsy; father was injured. Previous illnesses: Measles; scarlet fever; pneumonia four years and six years ago; jaundiced in 1867. Personal history: Has lived in Chicago three years; previously in Philadelphia and Virginia; smokes and drinks, also chews tobacco. Had gonorrhea eighteen years ago, and at same time had three venereal sores but no secondary manifestations. Present illness: Last Christmas patient began to suffer from pain in the back of the neck and between the shoulders. This he attributed to exposure to dampness and cold. This pain has continued to the present time.

At present there is pain on the right side of the sternum. Deep inspiration can be taken without causing much pain, but there is a clogging of the larynx, due, apparently, to accumulation of mucus, causing interference with inspiration and expiration. Patient coughs considerably; expectorates a profuse, frothy substance. There is pain on deglutition, symptoms of rhinitis anorexia, insomnia, constipation, orthopnea, shortness of breath.

Patient feels pain in the right shoulder, but most pain is referred to the right subclavicular region.

Examination. Inspiration is decidedly laborious, face is anxious, nasal secretions profuse, mouth open on inspiration and expiration, veins of forehead are somewhat distended, eyes negative, alae of nose dilated, tongue coated, pharynx negative ; some laryngitis, but no paralysis of larynx.

Lungs. Respirations moderately rapid and superficial and purely abdominal. On palpation the vibrations are felt more on the right side than on the left, fremitus is lessened over the anterior surface of both lungs. Percussion anteriorly on right side; there is some dullness extending from the clavicle to the third rib and to a point two and one half inches to the right of the sternum. Left side negative. Posteriorly over lower lobes of both sides, the percussion note is tympanitic, over the right upper apex it is dull. Auscultation is negative since the inspiratory stridor obscures all sounds.

Heart. Cannot detect any dullness on the left side, sounds are indistinct, no murmur is heard.

Pulse rapid and small in left side, absent on the right side. Distended veins seen on the anterior surface of the chest especially the right side. Veins of upper extremities distended. Temperature normal.

Dr. LA COUNT thought the case was a sarcoma of the mediastrium and advised examination of the sputum and the use of the exploring needle.

Dr. TINEN thought the case might be syphilitic, from the fact of the rapid improvement under potassium iodide.

Dr. WALKER had seen a case of aneurism of the aorta which had a similar cough.

Dr. WALKER, exhibited a case of clubbed fingers and toes associated with gangrene of the lungs.

Dr. TINEN exhibited a case of heart disease, also one of multiple fibro sarcoma and read the following note on

DIABETIC COMA.

Three weeks before admission to the hospital the patient came under the care of a physician who found sugar in the urine; he was advised to restrict himself to the usual diet prescribed for such cases.

The physician did not see the case again for three weeks, at the end of which time he was called in again and found the patient semiconscious. He ascertained the young man had not had a

bowel movement for four days ; gave several enemas but was unsuccessful and finally resorted to manual extraction of the scybali; he made a diagnosis of intestinal obstruction and brought the patient to the hospital for proper treatment. I first saw the case, ward 2, on August 30, at 3 P. M.

He was very much emaciated, breath had a sweetish odor, his respirations were deep and rapid; the pupils equal, neither contracted or dilated, could use all his muscles. He responded to questions but did not give intelligent answers. Reflexes present; tongue slightly coated; chest, lungs and heart negative; scaphoid abdomen, edge of liver just palpable.

He was catheterized and the urine showed a saturated solution of glucose. He was given 500 c. c. of a three per cent normal saline solution hypodermically in pectoral region, also inhalations of O. every thirty minutes. He improved very noticeably and at 9 P. M. he was transfused again, one liter of the solution being used. Strychnia was given as a stimulant. The solution was absorbed with great rapidity but I was unable to make successive urinalysis as I would have wished, and hence cannot state the effect on this excretion. He was transfused twice subsequently but on second day began to fail and died on the third day.

A post-mortem examination was made on the day following and nothing pathological was noticed except greatly dilated vessels of the liver. A microscopical examination is being conducted at the Rush Laboratories and I hope to give you the results at a later date.

Adjourned.

T. P. FINDLEY, Secretary.

Reviews.

A PRACTICAL TREATISE ON ORTHOPEDIC SURGERY. Designed for the use of Students and Practitioners. By JAMES K. YOUNG, M. D., Instructor in Orthopedic Surgery, University of Pennsylvania, etc., with 285 illustrations. Cloth, 446 pages. \$4.00. Philadelphia: Lea Brothers & Co., 1894.

The author's refreshingly brief preface outlines well the scope of his work. He takes up the subject systematically and while thorough is never prolix. He classifies the diseases belonging to the department of orthopedic surgery as deformities dependent upon lesions of bone, lesions of synovial membrane, lesions of cerebro-spinal system, impaired nutrition or diathesis, embryonic disease or disturbances of development and accident or traumatism, and then proceeds clearly and succinctly to describe the diseases under each of these divisions. The author has drawn largely for his illustrative cases upon his own experience, but has not been unmindful of the previous literature on the subject. The pathology and the preventive, mechanical and operative treatment of deformities receive due attention. The book is well and thoroughly illustrated, and will be of great value, not only to the orthopedic surgeon, but also to the student, general practitioner and general surgeon.

A SYSTEM OF GENITO-URINARY DISEASES, SYPHILOLOGY AND DERMATOLOGY. By various authors. Edited by PRINCE A. MORROW, A. M., M. D. In three volumes; Illustrated. Volume II., Syphilology. Royal octavo, 920 pages. New York: D. Appleton & Co., 1894.

The second volume of this magnificent work is devoted to syphilology and contains everything of a practical, historical and therapeutic value known to the science up to date. Not enough can be said in praise of the plates, which are introduced everywhere with profusion and good judgment, in illustration of the text. They are largely photographic and many of them have been colored, showing the lesions of this protean disease in a very satisfactory manner. The following names of contributors to this volume will give some idea of its standing: James Nevins Hyde, John A. For-
dyce, L. Duncan Bulkely, Joseph Zeisler, Prince A. Morrow, Samuel Alexander, W. T. Councilman, B. Sachs, Charles Stedman Bull,

J. William White, Charles W. Allen, Samuel Treat Armstrong, Edward Bennett Bronson, Eugene Fuller, J. Orne Green, Frank Hartley, Herman G. Klotz, John Nolan Mackenzie, Edward Martin, Frederick R. Sturgis, W. R. Townsend, James P. Tuttle. Such subjects as the relation of syphilis to public health, legislative measures, and the most available methods for limiting the spread of syphilis, are fully discussed. The diagnosis and treatment are set forth with extraordinary fullness and clearness.

ABBOTT'S BACTERIOLOGY. The Principles of Bacteriology; a practical manual for students and physicians. By A. C. ABBOTT, M. D. New edition. In one 12mo. volume of 472 pp., with 94 illustrations, 17 are colored. Cloth, \$2.75. Philadelphia: Lea Brothers & Co. 1894.

Abbott's little manual gave such satisfaction that a second edition will be received with pleasure and accorded a hearty welcome. The book before us is twice the size of the first edition and the employment of colored plates for the illustration of bacteria is a distinct advantage to the student. A very valuable sketch regarding immunity and infection has been introduced, the subject of all subjects in its relation to bacteriology is the most important. Six pages are devoted to a list of necessary apparatus for equipping an amateur laboratory. A rather formidable showing which may possibly deter many from taking up this work. Indeed, investigations of this sort can only be satisfactorily carried on in properly equipped laboratories by those who can give their undivided time to its pursuit. To those desiring an outline knowledge of bacteriology and to students in laboratory work the book is most cordially recommended.

CHEMISTRY: GENERAL, MEDICAL AND PHARMACEUTICAL, including the Chemistry of the U. S. Pharmacopeia. A manual of the general principles of the science, and their applications in medicine and pharmacy. By JOHN ATTFIELD, F. R. S., Ph. D., F. S. C., F. C. S. Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, etc., etc. Fourteenth edition. Cloth, 794 pages, \$2.75. Philadelphia: Lea Brothers & Co. 1894.

What can be said in review of a work like Attfield's Chemistry which has been standard for nearly thirty years, and whose popularity has been so great that since 1867 fourteen editions have been demanded. As long as the author keeps his work up to standard,

so long, despite the legion of medical chemistries, will the book retain its present high position among text-books. This edition is corrected and revised in accordance with the latest knowledge, and is voluminously indexed. The mechanical part of the work is of that degree of excellence which we are wont to associate with books bearing Lea's imprint.

LABORATORY MANUAL OF ELEMENTARY CHEMICAL PHYSIOLOGY AND URINE ANALYSIS. By JOHN S. LONG, M. S., SC. D., Professor of Chemistry, etc., in the Schools of Medicine and Pharmacy of Northwestern University. Cloth, 366 pages. \$2.50. Chicago: E. H. Colegrove & Co., 1894.

Professor Long has given us, in this book, just what would be expected from a teacher and practical chemist of his long and extensive experience, namely, a brief, but not too brief, concise, and thorough manual of chemistry for the use of students, with especial reference to chemical physiology and urinalysis. 173 pages are devoted to chemical physiology and 161 pages to urinalysis. The remainder of the book is taken up with an appendix, test solutions and tables. The descriptions are clear, the experiments, thorough but still concise, and the tables of great value. The manual is well worthy the attention not only of the student, but of the practitioner. The work of the printer, proof-reader and binder is excellent and the book reflects credit upon its publisher.

MATERIA MEDICA, PHARMACY, PHARMACOLOGY AND THERAPEUTICS. By W. HALE WHITE, M. D., F. R. C. P. Physician to and Lecturer on Materia Medica and Therapeutics at Guy's Hospital, London, etc. Edited by REYNOLD W. WILCOX, M. A., M. D., LL.D., Professor of Clinical Medicine and Therapeutics at the New York Post-Graduate Medical School and Hospital, etc. Second American Edition. Thoroughly revised. Cloth, 661 pages. \$3.00. Philadelphia: P. Blackiston Son & Co., 1894.

In point of excellent arrangement, accuracy, conciseness, practical usefulness and completeness, this handbook is without a peer. The author and editor both deserve congratulations. Whether it possesses value except as an index to guide the practitioner or as an aide mémoire to the student, and whether it is sufficient in itself to these requirements, is open to doubt.

News Items.

PROF. PETTENKOFER has resigned his chair in the University of Munich.

ANDERSON, IND., is to have a new Catholic hospital which is to cost \$15,000.

DR. J. W. HULKE has been reëlected President of the Royal College of Surgeons of England.

THE KENTUCKY STATE BOARD OF HEALTH has elected its President, Dr. J. M. Matthews, of Louisville.

PROFESSOR VON JAKSCH has been elected Dean of the Medical Faculty of the German University of Prague.

TWO FREE SCHOLARSHIPS have been endowed in Kansas Medical College by J. C. McClintock and S. E. Sheldon.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has removed from 68 Wabash Avenue to 86 Fifth avenue.

DR. V. P. GIBNEY has been elected Professor of Clinical Surgery in the College of Physicians and Surgeons, New York.

DR. FRITZ STRASSMANN has been elected to the chair of medical law in Berlin University, which has been vacant since 1891.

DR. E. E. MONTGOMERY has resigned his position as obstetrician to the Philadelphia Hospital, after having served fifteen years.

DR. WURZBERG, librarian of the imperial board of health at Berlin, has been made privy councilor of the sanitary department.

ANTITOXIN has reduced the mortality from diphtheria in the Kaiser Friedrich Kinderspital, in Berlin, from 38.9 to 13.2 per cent.

A STATE MEDICAL AND SURGICAL ASSOCIATION has been organized in Jackson, Miss., with a membership of one hundred and twenty.

NEBRASKA requires so called Christian scientists to obtain certificates from the State Board of Health before they are allowed to practice.

THE TRI-STATE MEDICAL SOCIETY, of Alabama, Georgia, and Tennessee, meets on October 9, 10, and 11, at the Kimball House, Atlanta, Ga.

UNIVERSITY COLLEGE, Liverpool, England, has been presented by Rev. S. A. Thompson with \$75,000 to build physiological and pathological laboratories.

THE NATIONAL SCHOOL OF ELECTRICITY effected the preliminary organization of a medical class and are going on with a course of lectures for practitioners, as outlined.

MASONS IN NEW MEXICO have invited the Masons of the United States and Mexico to coöperate with the Montezuma N. M. Lodge in the erection of a national home for consumptives at Santa Fe.

THE ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS has been given a complete outfit for a new chemical laboratory through the munificence of M. Niedringhaus, one of the trustees of the college.

JEFFERSON MEDICAL COLLEGE has elected Dr. W. Joseph Hearn to the chair of clinical surgery, Dr. S. MacCuen Smith to the chair of clinical otology and Dr. Edward P. Davis to the chair of clinical obstetrics.

THE OLDEST PHYSICIAN in continuous practice in the United States is said to be Dr. Hiram Corson, of Montgomery County, Pa. He is 90 years of age and has been in active practice for sixty-seven years.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION will hold its twentieth annual meeting at Hot Springs, Ark., on November 20, 21, 22, and 23. Dr. T. E. Holland is chairman of the local committee of arrangements.

DR. JOHN D. KALES, of Chicago, was granted the first prize of one hundred dollars, for the best essay on the physiological action of alcohol, based on original researches, by the American Medical Temperance Association.

PROFESSOR GUSSENBAUER, the newly appointed incumbent of the Chair of Surgery in the University of Vienna, has been elected President of the Twenty-fourth Congress of the German Society of Surgery to be held in 1895.

INOCULATIONS AGAINST CHOLERA were made in Calcutta during the month ending June 24, to the number of 826. In three homes

in which inoculations had been made, cholera appeared, but none of the inoculated were attacked.

SITUATION WANTED. As attendant in a doctor's office, by a young lady of seventeen, the daughter of a physician now dead, who is familiar with the necessities of the position. The best of references gladly furnished. Address RECORDER.

PHYSICIANS IN THE UNITED STATES number, according to Polk's directory, 106,633. Of this number, 72,028 or 67.55 per cent are regulars; 9,648 or 9.05 per cent homeopaths, 10,292 or 9.65 per cent eclectic, 1,553 or 1.45 per cent physiomedicale and 11,524 or 10.80 per cent unclassified.

THE COLORADO STATE MEDICAL SOCIETY has offered a prize of one hundred dollars for the best essay on the diagnosis of tuberculosis by examination of the blood. The prize committee consists of Drs. Charles Denison and H. A. Leman, of Denver, and Dr. S. E. Solly, of Colorado Springs.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION will hold its seventh annual session at Charleston, November 13, 14 and 15. The meeting promises to be the most successful in the history of the organization. Papers will be presented by the leading surgeons and gynecologists of the South.

THE AMERICAN ASSOCIATION OF PHYSICIANS AND SURGEONS is reported as having been organized at Indianapolis, on October 1. The national character of the association is shown by the fact that its officers are all from Indiana, and represent all creeds of medicine except the Christian scientist, and perhaps the physiomedical.

DR. CHRISTIAN FENGER delivered the opening address at the Northwestern University Medical School on September 25. His subject was a refreshing relief to the ordinary mildly encouraging exhortation commonly delivered on such occasions. He chose a technical subject, "Benignant Tumors of the Ileum," and treated it in a masterly manner.

THE NEW YORK PASTEUR INSTITUTE employed the preventive treatment during 1893 in 85 cases. In 26 hydrophobia had been evidenced by experiment or by the death from hydrophobia of other persons or animals bitten by the same animal; in 11, the wound was inflicted by animals recognized as rabid by clinical or veteri-

nary examination and in 48 cases hydrophobia could only be suspected.

DR. OLIVER WENDELL HOLMES, physician, teacher, poet, philosopher, physician to the souls as well as the bodies of men, died October 7, at his home on Beacon Street, Boston, of heart disease, at the age of eighty-five. Dr. Holmes' medical life began in 1836. Three years later he was made professor of anatomy and physiology at Dartmouth Medical School, but after two years resigned this position to devote himself to practice. In 1847, he was elected to the chair of anatomy in Harvard Medical School, and retained this position until 1882. Upon his resignation he was made professor emeritus. His latest work bearing at all upon medicine was his "Mortal Antipathy" which appeared in 1885.

PAMPHLETS RECEIVED.

A New Dynamometer for use in Anthropometry. By J. H. Kellogg. *Mod. Med.*, 1894.

Hydrogen Dioxide. By L. D. Kastenbine, M. D. *Louisville Medical Monthly*, July, 1894.

Inebriety as a Disease, Analytically Studied. By R. M. Phelps, M. D. *Med. News*, June 23, 1894.

The Effects of Ethyl Alcohol on the Affinity of Hemoglobin for Oxygen. By John Davis Kales, M. D.

Shortening the Round Ligaments vs. Ventral Fixation for Retroversion. By J. H. Kellogg, M. D. *Mod. Med.*, 1894.

Geisselfarbung ohne Beize. Von Dr. William Hessert. *Centralblatt für Bakteriologie und Parasitenkunde*, XVI. Band, 1894.

The Influence of Dress in Producing the Physical Decadence of American Women, by J. H. Kellogg, M. D. *Mod. Med.*, 1894.

Are Low Degree Lenses Merely of Mythical Value? By Horace M. Starkey, M. D. *Jour. Amer. Med. Ass'n.*, September 8, 1894.

The Treatment of Inoperable Malignant Tumors with Toxines of Erysipelas and Bacillus Prodigiosus. By William Coley, M. D. *Trans. Am. Surg. Ass'n*, 1894.

Bloodless Vaginal Myomectomy. *Journ. Am. Med. Ass'n*, July 21, 1894. Massage in Gynecology. *Journ. Am. Med. Ass'n*, Aug. 11, 1894. By Oscar J. Mayer, M. D.

The Production of Diseases by Sewer Air. *N. Y. Med. Journ.*, July 28, and Aug. 4, 1894. Stomatitis Neurotica Chronica. *Trans. of the Association of American Phys.*, 1894. By A. Jacobi, M. D.

Three specimens of Tumors of the Heart: Metastatic Carcinomatous Nodule in the Myocardium; Implantation Sarcoma of the Right Ventricle; Primary Round-celled Sarcoma of the Epicardium. *Med. News*, Nov. 18, 1893. Pathological Notes on Two Pedunculated Tumors. *Journ. Path. and Bac.* Nov. 1893, Four Healed, Ascending, Iliac Invaginations. *Inter. Med. Mag.*, Dec. 1893. By Ludvig Hektoen M. D.

Lectures on Rectal and Gastro-Intestinal Surgery, with demonstrations. A Modification of Kraske's Method of Excision of the Rectum. A Tunneled Fistulatome and Gastro-Enterostomy made within two minutes without Suture, Ligature or Forceps, with a modification of the Murphy button. By H. O. Walker, M. D., Detroit, Michigan. *Mathew's Medical Quarterly*, July, 1894.

THE CHICAGO MEDICAL RECORDER

NOVEMBER, 1894.

Original Articles.

CHOICE OF INCISIONS OF ABDOMINAL WALL; ESPECIALLY FOR APPENDICITIS.

By L. L. McARTHUR, M. D., CHICAGO.

SURGEON TO ST. LUKE'S AND MICHAEL REESE HOSPITALS.

Since the time of application to the Secretary of this society for an opportunity to present this subject, the summer recess has occurred. During that time Dr. Chas. McBurney in the *Annals of Surgery* for July has advocated the same procedure. This will therefore be a recommendation in itself for the suggestion.

It may at first sight appear an useless waste of time, at this date, and this era of abdominal surgery, to discuss the mere technique of an abdominal incision, but believing that for certain conditions, the methods now in vogue are not yet perfect, and that an improvement not in general use can be suggested I venture to ask your indulgence.

In opening the abdomen for any purpose, at least two factors should influence the direction of the incision, first, innervation of muscles to be incised; second, direction of muscle fibers to be penetrated.

It has been the custom in the past, relying on the surety of primary union which aseptic surgery now promises, to cut all the layers of the abdominal wall in almost any direction and any position, giving the greatest accessibility to the organs to be reached, without regard to either factors mentioned, or the sequellae which such disregard may induce. While any one pausing to study the

situation would grant at once the importance of considering the nerve supply, still so much are we the creatures of habit that steps from the beaten path are not often made and old lines of incisions continue to be used.

To Kocher I think belongs the credit of especially emphasizing the importance of the selection of the direction of incision with regard to skin cleavage and vascular supply, as based on the investigations of Langer, thereby rendering it possible to avoid traumatic paresis of the muscle cut, its subsequent degeneration, atrophy and in the abdominal walls future potential ventral hernia. Langer's investigations into the directions in which the skin splits show that the tension of the skin varies greatly in two different directions. Two incisions at right angles exhibit a varying retraction of the wound margins, while one gapes widely the edges of the other remain in contact almost without artificial aid. This fact has to be borne in mind, in choosing the direction of the incision unless other factors have a determining effect in the concrete case, for the course of the vessels, and especially of the larger and smaller nerve twigs is even more important for the direction of the incision. Fortunately the course of the nerves and vessels coincides with the direction in which the skin shows the greatest tension, so that a cutaneous incision adapted to the cleavage lines corresponds also with the course of important nerves and vessels.

Who in making incisions in the extremities would think of making them transverse to the general nerve supply? Yet such is done daily; for example when making perpendicular incisions through the linea semilunaris, by which the rectus muscle in such of its extent as parallels the cut is deprived of its nerve impulse.

I would add to Kocher's instructive work this farther modification, that where feasible the muscular structures be not cut, but their fibers separated transversalis to their two general directions; the fibers of the external oblique in its direction, the fibers of the internal oblique and transversalis in theirs. In a large proportion of cases this will afford enough room for most abdominal operations not made best in mesial line, will not result in a paralysis of the distal portions of the commonly severed muscles, will avoid future hernia, and will require but little or no stitching.

For over two years, I have put in practice these principles, with especially gratifying results in operations upon the appendix, or abscesses resulting from inflammatory trouble therein, and thanks to the courtesy of many members of this society, have been able to demonstrate to their entire satisfaction how simply and

safely an opening through the abdominal wall can be made with no further cutting than that of the integument and fascia beneath it, and with the least possible risk of ventral hernia for the resisting structures having been simply separated with the handle of the scalpel, as soon as the retractors have been removed fall so closely around the drainage tube as to scarcely require stitching. Indeed, Dr. Wyllys Andrews has operated after this suggestion without a single stitch being inserted.

For an appendical abscess incision the following rules have been used with the greatest possible satisfaction :

Location. The selection of location for the incision, in my opinion, should be determined by the point of nearest approach to the surface, as evidenced by palpation, by percussion, and by greatest tenderness without regard to where that may be, for we have long since learned that this may vary widely from the diagnostic point of tenderness now historic. If any deviation be made from such selection, I think inclination would guide one to keep close to the layer of peritoneum lining the right iliac fossa. If you recall for a moment that in the majority of instances no structures lie externally to the caput coli and appendix, where the peritoneum is reflected from it, it will be readily seen that as the pus forms around them the parietal peritoneum is very likely to form a part of the external wall of the abscess, and the moment it is perforated the abscess is opened and drainage easily provided for.

The direction of the incision for appendicitis has always been parallel to innervation and the fibers of the external oblique. On reaching the external oblique its tendinous fibers are separated and held apart with small retractors, the intermuscular septum is next cut with the blade and the fibers of the internal oblique with the transversalis, which over the appendical area are practically parallel, are separated with the handle of the scalpel and stretched apart with a finger in each angle of the wound and helped with wide retractors. The transversalis fascia is then cut, when the peritoneum comes into view. Next we determine a position in which this structure is adherent to or forms part of the abscess wall and penetrate at such a point. By this means, the abscess is opened without entering the general cavity in the great majority of cases.

Four times in fifty-nine cases of abscess, the peritoneum proved nonadherent, and an opening in the general cavity was the result. With this peritoneal opening enlarged enough to admit the finger the exact location at which the parietal peritoneum was ad-

herent was determined, the general cavity closed with carefully applied sutures, and then the abscess opened where an adhesion was known to exist. In every case no ill result followed. In eleven cases in which the operation was for the removal of the appendix between the attacks of a recurrent appendicitis the walls and peritoneum were thus penetrated and the results perfect in every case.

CONCLUSIONS. For this incision the following claims are made:

1. Less hemorrhage.
2. Clearer anatomy.
3. Least possible danger of subsequent hernia.
4. If necessary to enlarge wound only one layer of muscles need be sacrificed.
5. Less suturing.
6. Patient need not be so carefully confined to one position.
7. Less cellulitis.

70 STATE STREET.

THE CIRCULATORY SYSTEM IN TYPHOID FEVER.

BY FRANK BILLINGS, M. D., CHICAGO.

MARKED ANATOMICAL CHANGES in the heart are rare in typhoid fever. Pericarditis is very uncommon and endocarditis is equally rare. Slight thickening of the mitral valves with relative insufficiency is not uncommon. As in all protracted fevers the heart muscle is, in severe cases, unusually flabby, soft and paler than normal. Myocarditis and parenchymatous or granular and fatty degeneration of the muscle fibers are often present, but these histological changes do not bear a constant relation to the cardiac weakness or cardiac failure so often manifested in severe cases.

THE HEART SOUNDS are at first clear and normal. In severe cases the first sound often becomes less loud and short in duration. The first sound may not be heard at all in very low cases when the heart is beating rapidly. It is sometimes difficult to distinguish between the first and second sounds where the two sounds are much alike in quality and duration and the long pause is shortened.

THE PULSE is usually rapid, although it is not unusual for the pulse to remain below one hundred at the height of the fever. The pulse will average from 90 to 110 per minute. Murcheson places the rate higher. He says: of 100 cases it exceeded the normal rate in all but one; in 97 cases it exceeded 90; in 85 cases it exceeded 100; in 70 cases it exceeded 110; in 32 cases it exceeded 120; in 25 cases it exceeded 130; in 10 cases it was above 140; and in 2 above 150.

All clinicians agree that those cases are most severe in which

the pulse is quickest and the prognosis becomes relatively bad as the rate persistently exceeds 120. The pulse varies, as a rule, with the temperature corresponding with the rise and fall of the latter. During convalescence the pulse is often unusually slow. Osler mentions one case with a pulse of thirty, Murcheson one with a pulse of thirty-seven and others below fifty. It is a common observation that a slow pulse occurs more frequently during convalescence of typhoid than in any other acute infectious disease.

The radial pulse presents nothing especially characteristic. During the first few days it is often moderately full and somewhat tense, and especially in those cases presenting marked nervous phenomena. After the first few days and sometimes from the beginning it is soft, compressible and often dicrotic, a condition formerly considered almost characteristic of the disease. Dicrotism is often as well marked in other acute diseases. During the progress of the fever the pulse becomes small, weak and more rapid, and in cases with much prostration it may be felt only with the greatest difficulty. Irregularities of pulse may occur during the height of the fever or during convalescence. If the irregularity be persistent and severe it is of grave import. The relation of the pulse to temperature variations is important in both diagnosis and prognosis. A persistently rising pulse rate with falling temperature may occur with bowel perforation, with hemorrhage or in severe toxemia and consequent collapse. It is always a grave condition that produces it except perhaps that due to typhoid mania or severe delirium.

The diminished cardiac activity and force may result in hypostatic congestion of the lungs; in venous thrombosis especially of the lower extremities; in thrombosis of pulmonary artery and sudden death; in emboli in the kidneys, spleen, lungs and the heart itself; in edema of the lower extremities especially on rising during convalescence; and in thrombosis of the arteries of the extremities and consequent gangrene.

The circulatory effects or results of cardiac weakness are probably not due alone to the lessened blood pressure, but to the blood changes and also possibly to the specific toxin. In typhoid during the height of the disease the red blood corpuscles are much diminished in number and the hemoglobin is always reduced in amount and usually in greater relative amount than the red corpuscles. The white corpuscles vary but little from the normal number, a slight decrease being the rule.

THE TREATMENT of the progressively failing heart in typhoid fever should consist of the administration of strychnia in full doses hypodermatically. The use of this drug in medium doses during the early stages of the disease will do much, I believe, to keep up cardiac tonus and thus prevent the asthenic condition of the later stages. Alcohol freely used will tide the weakened heart over the interval of severest strain. I think alcoholics should be withheld in the disease until the time of cardiac weakness and then should be given in full doses. Caffein, camphor and ammonia have their place when stimulation is most necessary. Digitalis is of doubtful benefit to an already overworked heart, but it gives undoubted good results in some cases. Lastly the Brand treatment seems to prevent the serious cardiac failure in many cases and should be considered a part of the treatment for cardiac asthenia in the disease.

255 STATE ST.

RESPIRATORY COMPLICATIONS OF TYPHOID FEVER.

By E. FLETCHER INGALS, A. M., M. D., CHICAGO.

EPISTAXIS. This is among the most common symptoms of typhoid fever, occurring before the enteric affection has been fairly established. It sometimes takes place later in the disease, and is probably due in such instances, partly to alterations in the blood and partly to the congestion of the nasal mucous membrane, which is commonly present in typhoid fever.

ACUTE RHINITIS. This as already stated is one of the frequent concomitants of enteric fever, but it usually disappears before convalescence is established. The profuse discharge from the nasal cavity, or the excessive secretion which may become dried, and block up the nares, occasionally cause the patient great discomfort. This may be best relieved by the application, two or three times daily, of alkaline or oily sprays, or of both of these alternately. An alkaline solution which will generally answer the purpose well, consists of the bicarbonate of sodium, $2\frac{1}{2}$ grs., biborate of sodium, $2\frac{1}{2}$ grs., glycerine 1 drachm, water sufficient to make an ounce; or in place of this we may use a saturated solution of boric acid. An oily spray that will usually give the patient much comfort, consists of thymol, grs. $\frac{1}{3}$, oleum caryophylli, minims 3, to liquid albolene 1 ounce.

PERFORATION OF THE CARTILAGINOUS SEPTUM. Necrosis of the

nasal cartilages is occasionally seen during the course of typhoid fever, but from the frequency of perforation of the cartilaginous septum, that cannot be accounted for in other ways; I think that the affection is more common than generally supposed. Many physicians are under the impression that perforation of the cartilaginous septum is nearly always indicative of constitutional syphilis, an opinion which is very wide of the truth. Indeed there are but few cases in which the cartilaginous septum alone is destroyed, without involvement of the vomer, that are of specific origin. In the treatment of necrosis of the nasal cartilages, all that can be accomplished at the time may be effected by the alkaline or oily sprays already recommended, but as convalescence occurs the ulcerating edges should be touched either with a strong tincture of iodine or with nitrate of silver, every second or third day until healing occurs.

ACUTE LARYNGITIS. This affection sometimes occurs either as a complication or sequel of typhoid fever. It is not commonly sufficient to give the patient great inconvenience, and seldom requires treatment; but should any treatment be necessary, relief will usually be obtained by the use of sedative vapors or steam impregnated with opium, belladonna or lupulin. The sedative vapors are prepared by adding thirty grains of lupulin or five grains of the extract of belladonna, or five grains of the extract of opium to an ounce of water. Of this solution a teaspoonful is placed in a pint of water at 150°, and the patient is allowed to inhale from this through an ordinary inhaler, for about five minutes. The same solution may be used with the steam atomizer. For this purpose it should be filtered and about half teaspoonful should be added to the ounce of water, and placed in the cup for atomization. If the inflammation continues after three or four days, more relief will be obtained by spraying directly into the larynx a solution of boric acid and sulphate of zinc, eight grains of the former, and one or two of the latter, to the ounce of distilled water. If this proves too stimulating, a solution of menthol from three to five grains to the ounce of liquid albolene may be used in a similar way.

EDEMA OF THE LARYNX. This occasionally occurs during the course of typhoid fever, and may be the immediate result of acute laryngitis or of perichondritis. If during the course of typhoid fever the patient complains of a sense of fullness in the throat, which rapidly increases, so as to cause choking sensations and suffocative attacks, the part should be inspected by the laryngoscope, and if edema is present the swollen mucous membrane

should be scarified at once; if this fails to give relief tracheotomy should be done. It is not safe in these cases to rely upon pilocarpine or any of the other internal remedies which will sometimes relieve acute edema. Neither is it safe to wait, for the swelling is liable to rapidly increase and sudden death may take place unless the physician acts promptly. This affection usually occurs at the close of protracted cases where there has been very great prostration.

CHONDRITIS AND PERICHONDRITIS OF THE LARYNGEAL CARTILAGES. From statistics this affection seems to have been present a little less than one per cent of all fatal cases of typhoid fever. It is not apt to occur before the third week of the disease. It is then indicated by tenderness or pain in the larynx, difficulty of swallowing, hoarseness, and more or less dyspnea which in the course of forty-eight hours is usually sufficient to require tracheotomy. The crico-arytenoid articulations are affected early, and there results more or less immobility of the vocal cords. Occasionally a grating or crepitating sensation may be detected by palpation over the larynx, but frequently laryngoscopic examination will reveal nothing excepting slight hyperemia with trifling swelling of the parts until an abscess has formed. The majority of these cases prove fatal. Endolaryngeal treatment is not usually unsatisfactory because of the great weakness of the patient, and the comparatively rapid progress of the affection. Therefore commonly it will be necessary to do tracheotomy. In such cases the low operation is more likely to save life. Should the patient recover, exfoliation of the cartilage may occur, cicatricial contractions supervene, which are liable to render it necessary that the tracheotomy tube be worn during life unless the stenosis thus caused can be dilated by Schroetter's method of the O'Dwyer tube. I do not now recollect to have seen but two cases of this kind. In one I was called upon to do tracheotomy. The patient made a good recovery, but was required to wear the tracheal canula for several years. In this case an attempt to dilate the stricture by the O'Dwyer tube, proved futile because the patient complained of the pain, and could not give the treatment the necessary time.

PLEURISY. This is one of the complications of typhoid fever which is most likely to occur late in the attack. The symptoms are not usually prominent, so that it is very frequently overlooked, unless careful physical exploration of the chest be made. Although the product of inflammation is occasionally of a sero-fibri-

nous character, usually the collection of fluid becomes purulent, and empyema results. In some cases it does not occur until three or four weeks after the fever has run its course, and is therefore really a sequel of the enteric affection. Weintraud, in the *Berliner Klinische Wochenschrift*, Berlin, reports a case, November 15, '93, in which bacteriological examination of the pus disclosed the presence of bacilli corresponding to those of enteric fever. In such cases the prognosis is necessarily unfavorable because of the exhaustion under which the patient is already laboring. The treatment would consist of opening the pleural sac and evacuating the pus by some one of the well-known methods. Preferable by aspiration at first, and subsequently gradual drainage simulating the process of nature; but if this does not succeed within two or three weeks while the lung is being expanded as far as possible, a free opening with resection of the rib may be necessary, and the insertion of large drainage tubes should be practiced. In the meantime, as a matter of course, the patient's nutrition should be carefully attended to, and such tonics given as seem necessary.

BRONCHITIS. This is a comparatively common complication of typhoid fever, but occurs more especially in patients that have not received proper attention during the early portion of the attack. It is sometimes associated with lobular pneumonia and with hypostatic congestion of the lungs. Slight catarrhal inflammation of the bronchi is present in the majority of cases of typhoid fever, and needs no mention, but a more serious complication is that of inflammation of the finer bronchi which occurs during the second or third week of the disease, or even later, and not infrequently proves a grave complication. This complication may occur at any stage of the typhoid affection, but is not usual until the later stages of the disease. Occasionally the symptoms denoting the inflammation of the bronchi are so acute in the beginning as to mask those of the typhoid fever, but usually the reverse is true, and occasionally the symptoms of the bronchial and enteric affections alternate with each other. As a rule there is but little cough or expectoration, and although the respiratory movements may be greatly accelerated, the patient does not complain of much dyspnea. The signs commonly occur late in the disease, and are more marked in proportion to the weakness of the patient. Occasionally passive congestion is associated with the bronchitis and may give rise to slight dullness at the lower portion of both lungs.

Upon auscultation numerous râles are obtained, generally of a

sibilant character, though some coarser râles may be heard in larger bronchi. Although the râles are commonly dry and disseminated throughout both lungs, they may become moist and subcrepitant and then are apt to be heard best over the lower posterior of both sides. When associated with signs of congestion they are likely to be more numerous upon one side, dependent upon the position of the patient. When the râles are extensive and accompanied by expectoration of tenacious, stringy mucus, with dyspnea, the prognosis is exceedingly unfavorable. In such cases the carbonate of ammonium in free doses is indicated, together with strychnine or nux vomica, and alcoholic stimulants; at the same time turpentine stupes or other mild counterirritants may sometimes be applied to the surface of the chest with advantage. This affection, coming on as it does late, in the course of typhoid fever, may be readily confounded with acute tuberculosis. I shall never forget a case of the kind I saw several years ago with one of the members of this society. We both agreed to the diagnosis of tuberculosis, but a couple of months later, were much chagrined to learn our mistake, when we found the patient upon the street in good health. A few cases of fibrinous bronchitis have been observed during the course of, or immediately following typhoid fever.

HYPOSTATIC CONGESTION AND PULMONARY EDEMA are among the frequent complications of the later stage of typhoid fever, resulting from imperfect circulation, and long-continued recumbency of the patient in one position. These conditions usually disappear with subsidence of the fever, but as they tend to grave consequences, their occurrence should, if possible, be prevented by causing the patient frequently to take deep respirations, and by having his position frequently changed. Extensive edema of the lungs sometimes occurs during the later stages of enteric fever, and may be accompanied by hemorrhagic infarctions, leading to gangrene. These conditions call for free alcoholic stimulation, the generous supply of proper nutrients, and stimulation of the respiratory and circulatory centers by strychnine or nux vomica, by which methods a fatal termination may sometimes be averted.

PNEUMONIA. Lobular pneumonia may attend bronchitis as one of the complications of typhoid fever, but croupous or lobar pneumonia is of more frequent occurrence; the latter indeed is a common complication. It may develop in the beginning of the attack, though it does not usually occur until the second or third week, and sometimes follows the subsidence of pyrexia. I do not now refer to the typhoid symptoms which are frequently present in

ordinary cases of acute croupous pneumonia, nor yet to that typhoid pneumonia of a sthenic form, commonly fatal, which has been found to occur in epidemics among soldiers and others subject to unhealthy sanitary conditions. The chief feature of this latter affection, are extreme exhaustion, with a constant tendency to collapse, and symptoms like those of 'septicemia, although the pulmonary signs may be slight, consisting only of a few viscid subcrepitant râles, heard irregularly at the base or apex of the lung. The true croupous pneumonia, complicating typhoid fever, is generally latent, and comes on insidiously, its symptoms being masked by those of the original disease. Its accession is indicated by increased rapidity of the pulse and respiration, with an irregular temperature curve, and great prostration. Cough and sanguinolent sputum are seldom present. The diagnosis will depend upon the symptoms already cited, and discovery of more or less imperfect physical signs of consolidation. Extensive inflammation of the lung complication in typhoid fever, is always very grave. In its treatment, all depressing agencies should be avoided and supporting measures constantly enforced.

Pulmonary tuberculosis is commonly believed to be a not infrequent result of typhoid fever, and certainly acute tuberculosis does, in rare instances, occur immediately after or during the attack of typhoid fever; but in most such cases there is always a question as to the correctness of the early diagnosis. It is well known that the symptoms of acute tuberculosis are very like those of the enteric affection, and from what I have already said in speaking of bronchitis as one of the complications, it is seen that the physical signs are not very distinctive. Rokitansky's statement that preëxisting tubercle almost excluded typhoid has, as stated by Fox, been largely confirmed by many observers. In an analysis of five hundred cases of pulmonary tuberculosis, taken at random from 1246, that I have seen in my private practice within the last few years, and of which I have very complete records, I find that in only four, or in considerably less than one per cent, was the disease attributable to typhoid fever.

VENETIAN BUILDING.

COMPLICATIONS OF BONES AND JOINTS IN TYPHOID FEVER.

By Dr. CARL BEČK, CHICAGO.

Among the complications of typhoid fever, the diseases of bones and joints have always been regarded as not interesting and of minor importance. The text-books treat them in a desultory manner and devote to their description only a few words, if they mention them at all. It is true that they are not as common as other complications, but if they occur, they may present a grave condition and even endanger life. They may offer great difficulties to the diagnostician. The progress in bacteriology, however, has been beneficial in this way, and test tube and microscope as well as experiments have thrown some light on the causal connection of different pathological changes of bones and joints consecutive to the process of typhoid fever; with other words: It has been proven, that the bacillus typhosus is able to produce changes in bone tissue as well as in the alimentary canal. (Quincke, Ebermier, Klemm and others.)

COMPLICATIONS OF BONES. There is no doubt that the bacillus typhosus invades the substance of bone. In eight cases out of ten Quincke found in the medullary substance of ribs from patients who died from typhoid fever, the bacillus typhosus. The medullary substance, he thinks, has the same physiological function as the spleen, and both are afflicted the same way. In all these eight cases, no disease of bones has manifested itself during lifetime, and it may be concluded from these facts and from others, that the bones in the disease of typhoid fever are usually afflicted.

There are instances of analogous occurrence of the typhoid bacillus in organs where it is least suspected. A very interesting fact in this regard is brought out by Dr. Fuetterer and a few years later by Dr. Chiari, who both found that the gall bladder usually contained a number of typhoid bacilli, which can multiply in the bile and eventually can cause a relapse of the fever. The precipitation of the bacillus typhosus in the bone substance is partly due to the slower circulation within the same. (Neumann.)

Altogether it must be said that it seems strange why the complications are not more frequent, if the conditions for them are so favorable. The answer to this is, that the pathological changes are really frequent, but the clinical symptoms are not; at least many of the symptoms due to bone affections have not been ascribed to

bone lesions. It is easily understood, therefore, why Fuerbringer found bone complications only five times among 1,600 cases. Keen has reported a much larger percentage, for he has traced many cases of bone affection to their proper etiology after an elapse of years from attack of typhoid fever.

The pathological changes consist of all stages of inflammation, from the infiltration of leucocytes and formation of granulomatous mass, down to all phases of regressive metamorphosis of bone and exudate. Classifying the processes from this point of view, we would find :

1. Simple redness and swelling. Edema.
2. Formation of a soft pulpous mass.
3. Liquefaction of newly formed tissues.
3. Dry necrosis of bone.
5. Necrosis with suppuration.
6. Caseation.

An important discussion is raised among the authors who have studied this subject, and this is the question, whether the typhoid bacillus by its own action causes suppuration, or whether it requires the aid of other pyogenic microbes. In many cases micrococcus pyogenes aureus or albus has been found with the bacillus typhosus. Fuetterer has found in his cases a mixed infection; bacillus typhosus and micrococcus pyogenes aureus and in most of the organs, Krannhals in Riga in a case of osteomyelitis after typhoid fever, found also mixed infection. Other authors have found pure cultures of typhoid bacillus, (Eberth-Gaffke) in all exudates; for instance Colzi in a case with pure suppuration of an osteomyelitis of the tibia, Bergmann in a dry osteomyelitis with formation of sequester, Ullmann, Albert, in a meningitis suppurativa.

The opinion of the majority is now, that the bacillus typhosus per se can cause suppuration, while Baumgarten and others think that the bacillus typhosus survives the other microbes, or has even a deleterious influence upon them, and therefore is to be found alone and virulent in older exudates. Experiments tend to prove this fact.

SYMPTOMS. The bone lesions may not exhibit any subjective symptoms in the early stage of the disease, but at a later period they will be indicated by a rise of temperature and localized pain. This complex of symptoms has for a long time been called "bone-rheumatoid," (Witzel.) The fever will have an exacerbation in the evening, and if besides the fever and pain, objective symptoms

as swelling or localized edema appear, the diagnosis may be regarded as definite.

If the inflammatory processes in the bony substance are so commonly associated with typhoid fever, they must heal out spontaneously without leaving a trace. We have therefore a *restitutio ad integrum* as the ordinary result. Several consecutive attacks may occur.

Fuerbringer relates that his own son was afflicted with seven attacks on ten different bones. Mercier speaks of a case with six attacks on six different bones.

Another result may be liquefaction without pus, a very characteristic fluid is formed which contains many bacilli. The central portion of the bone, or more often the corticalis may die off, a sequestrum is formed, fistulae established, in short, the pathological changes may be similar or run into chronic tuberculosis.

TREATMENT. Mild cases of plastic osteitis will be treated expectatively. May be that the future serum treatment will give us some means to check the disease, though the *bacillus typhosus*, according to the experiments of Schiller, belongs to the very resistant kind.

In all cases with suppuration, liquefaction or formation of sequestrum surgical treatment according to our accepted rules and indications of bone surgery must be instituted, and this must be done early, otherwise it will be of no avail.

COMPLICATIONS OF JOINTS. In former times all diseases of the joints were called rheumatism, there was no reason for differentiation, though even the clinical observations tended to demonstrate a different course of apparently the same disease. A great progressive step was accomplished when tubercular joint lesions were recognized as such, and accordingly classified. But it remains a merit of Bouchard to have made a distinction of the rheumatisms of different etiology and to show that all infectious diseases without exception can bring about lesions of joints, which must be regarded and often treated in an entirely different manner. It is an important fact in practical medicine therefore to differentiate.

Though this specific action of the microbes is an undeniable fact, proven by observation and experiment, it is a question again, like in the pathology of bones, whether the specific action of the *bacillus typhosus* alone, or with the aid of the common pus microbes is able to produce the grave and destructive joint

lesions. This mixed infection plays an important role in the pathology. It is thought that the pyogenic organisms make their entrance wherever other microbes have smoothed the path for them.

One of the diseases that can cause arthritis is typhoid fever and the same will share many features with other arthritic lesions. The slightest degree will be an edema of the capsule and synovial membrane with injection of blood vessels.

A still higher degree will be the softening and swelling of the cartilages and ligaments with lardaceous degeneration of these tissues.

A still higher degree is the accumulation of serous, fibrinous, hemorrhagic or pus exudate in the joint, which may be followed by destruction of the parts.

SYMPTOMS. The joint affections of typhoid fever usually appear during the decline of the disease in individuals who never before had any tendency to rheumatic affections. This affection limits itself to a few joints, one or two, while polyarthritis as the name indicates is an affection of many joints.

It does not change its seat like polyarthritis, wandering rheumatism.

Pain and temperature are also present.

The following are the results: a. Spontaneous healing. b. Anchylosis. c. Spontaneous luxation. d. Death caused by pyohemia.

According to this we can distinguish several forms:

1. The arthralgic form which will cause pain and temperature, with only slight or no objective symptoms.
2. Hydrarthros typhosus, with serous exudation.
3. Arthritis plastica typhosa with fibrinous exudation and often followed by anchylosis.
4. Arthritis suppurativa typhosa, pure or mixed infection, often followed by rapid development of pyohemia and fatal termination.

The hydrarthros or common arthralgic form may be followed by atrophy of the ligaments, Lannelongue, Villemain, Roser, Verneuil, and the joint will in consequence lose its firmness, a spontaneous luxation may be the final result, such as has been seen in a number of instances in the hip joint.

TREATMENT. *I. Prophylactic.* The researches of Feutterer and Chiari found the interesting fact, that the typhoid bacillus is transported from the alimentary tract to different parts of the

body, and we obtain from this the practical indication to apply the most scrupulous disinfection of the same, to treat every ulcer of the mouth, pharynx or larynx during typhoid fever.

II. Medical. We have so far no antitoxin, nor any efficient medicinal remedy.

III. Surgical. The arthralgic form requires rest and bandaging. Hydrarthros indicates puncture and lavage with an antiseptic.

Plastic arthritis must be treated with rest at first, followed with passive movements, massage, electricity and baths.

Suppurative arthritis indicates radical surgical treatment, spontaneous luxation a special operation.

103 STATE STREET.

TOPICAL TREATMENT OF THE AIR PASSAGES WITH EXHIBITION OF A NEW ATOMIZING VAPORIZER.

BY HOMER M. THOMAS, A. M., M. D. CHICAGO.

The topical treatment of diseases of the air passages is a subject of much interest to the medical profession. It is fortunate that such is the case when we consider that in the disease of pulmonary consumption alone, the death rate is one in six or seven of all deaths in the United States, not even counting those which result from other diseases of the respiratory organs. This statement is not true of any other disease or diseases. Probably the mortality is due to two facts: 1. That this class of diseases is very difficult to prevent or cure; and 2, that medical research has given less attention to these specific diseases.

In presenting the subject of topical treatment of the air passages, there is no intention of claiming that a new method or remedy has been discovered, but rather a wish to emphasize the importance of thorough local application of drugs to the affected passages. For some ten years it has seemed to me that the most rational treatment consisted in the local application of drugs to the affected part as one media of cure, not of course neglecting and recognizing the importance of the great value of general constitutional treatment as well. One difficulty which has appeared to lie in the way of the thorough application of drugs to the affected air passages has been in the unsatisfactory action, and hence imperfect construction of the various atomizing inhalers furnished the profession. These instruments have either been too delicate in construction to permit the use of sufficient pressure to make possible

a deep penetration of the vaporized medicament into the air passages, or become so easily clogged up with the medicament used as to create great annoyance in their use.

The instrument which I present you this evening made for me by Truax, Greene & Co., is the result of some little time and effort spent in striving to secure an atomizing vaporizer which would overcome the objections mentioned and make it useful for the purpose desired. It consists of a heavy glass bottle ten inches in length and twelve inches in circumference at its widest portion, narrowing at the top to a circumference of three and one-half inches. The bottle part is of very heavy glass and is tested to withstand a pressure of one hundred and twenty pounds to the



square inch. The atomized vapor is produced through a tube made of German silver and heavily nickel plated, which is nine inches in length. Three inches from the lower end are two tubes, the ends of which approximate to within one-eighth of an inch of each other. The opening of the inner tube is one-third that of the outer tube, which is one-half inch in circumference. When in use the motive power being compressed air, varying in pressure from five to fifteen pounds to the square inch, enters the main tube and two-thirds of it is ejected at the mouth of the inner tube, the remaining one-third passing down into the medicinal menstruum, from which it assists in forcing a solid column of the medicament to the mouth of the outer tube. The whole mass is then projected in an atomized form against the inner side of

the bottle near the top from whence it falls in rivulets to the bottom of the bottle, the residue escaping from the top through an outlet opening in the form of a very fine smoke-like vapor. A screw cap, within which is a screw thread three-quarters of an inch in length, securely anchors the top to the bottle. I have found this instrument to be strong, durable, easily cleaned, perfectly antiseptic, and to meet the requirements of this special form of medication.

The uses to which this atomizing vaporizer can be put in the topical treatment of the air passages are many. I have found it of value in the treatment of acute schneiderianitis where there is a marked swelling of the tubinated bodies, that is, in the intumescent states without true hypertrophy. It is also valuable as a protective to the inflamed nasal surfaces after the use of strong astringent applications. As a palliative to be used after deep linear galvano-cauterizations, it affords marked relief. The periodical attacks of acute influenza from which so many suffer in this climate are to quite a degree alleviated by the use of topical treatment with the atomizing vaporizer. It is of slight value in the treatment of hay fever, but its use in this affection is very limited.

In follicular pharyngitis, after the diseased follicles have been punctured or removed, the covering of the inflamed surface with an oily menstruum through the media of the vaporizer affords much comfort and relief.

In acute and subacute laryngitis, where you wish to secure an alterative astringent, or soothing application over the entire inner surface of the larynx it will be found useful for this purpose. The most striking benefits in the use of the atomizing vaporizer are to be found in the severest cases of acute, subacute, capillary and chronic bronchitis. In those cases, where there is a tenacious, thick, yellowish, and often greenish bronchial discharge accompanied with or without dyspnea, it is quite astonishing with what success old cases of bronchitis, even complicated with emphysema, will be benefited. Beginning the inhalation in these cases, you usually have explosive coughs accompanied by the expectoration of a large amount of phlegm, the vaporized medicament appearing to loosen the secretion from its membranous attachment. The phlegm, as treatment progresses, usually loses its muco-purulent character and is decreased in quantity. As a general rule you will get the most marked benefits within the first ten days or two weeks of treatment. After that

the improvement is slower and finally reaches its maximum effect. This treatment will not cure completely a large proportion of cases of chronic bronchitis, but affords very marked relief, and the incurable cases appear to me to be due to the reaction following the severe and sudden changes in temperature which we so frequently have.

I see no reason why in cases of pertussis this form of medication should not be valuable, but my experience is limited in these cases. I have found in cases of fibroid phthisis, where no bacilli could be detected in the sputa, that the deep and prolonged efforts at inspiration assist greatly in enlarging the respiratory area, that is, a vaporized medicament carried into the lungs, under a pressure of some fifteen pounds to the square inch and assisted in its ingress by the voluntary deep inspirations of the patient, assists in opening many of the closed air vesicles. The greatest success in this method of treatment will depend upon the ability of patients to inhale the medicaments deeply. It is astonishing how few patients really know how to take a deep inspiration. As a rule the inspiratory effort is limited to the supraclavicular and infraclavicular regions, hence the necessity of the intelligent co-operation of the patients in inspiring the inhalants. Necessarily a vapor which is principally suspended in the mouth and throat is imperfect because of the lack of inhalation. Patients describe the sensation of the vapors as extending down into the lower and deeper portions of the lungs. Occasionally there will be experienced a sensation as of the presence of the vapors as low as the diaphragmatic line. In my experience there can be no possible danger to the patient from the persistent, prolonged and deep inspiration of the vaporized medicaments, for the manner in which I use the apparatus it is entirely voluntary and optional with the patient how deep and prolonged the inspiratory effort is. This I consider of marked advantage as the sensations experienced can as a rule be relied upon as the desirability of prolonging or discontinuing the treatment. Laying aside for the present any considerations of the therapeutical action of the medicaments inhaled upon the air passages, I believe the chest expansion of a patient can be increased from one-half to two and one-half inches by the daily use of the inhaler. My method of using the inhaler is to take for the nasal passage a tube like this (here the speaker exhibited a tube), if it is desired to treat only one nasal passage at a time. Where you wish to treat two at the same time I make use of the double bulb, and in giving the inhalations directly

through the mouth use is made of this tube. I now desire to present for your consideration a series of experiments with the atomizing vaporizer which were undertaken to determine how deep the vapors penetrate into the air passages.

August 12, a kitten was placed in a pine box, 21 inches in length, 11 inches in width, 12 inches in height, with dove-tail seams. A half inch hole two inches from the bottom in the lower end was made for the entrance of vapor. A half inch hole at the top of the further end of the box, two inches from the top end was allowed for the exit of vapor. A vapor consisting of five per cent pure iodine in a two ounce solution of blandine, which I believe to be simply a neutral oil, was used for the experiment. A pressure of compressed air about nine pounds to the square inch was used to pass through the inhaler to generate the vapor. The vapor was introduced continuously for twenty minutes; at the end of this time the kitten was removed from the box and immediately killed by an injection of sixty minims of a three per cent solution of prussic acid per rectum. The respiratory tract was then removed. The starch test for the presence of iodine was then applied to the air passages with the following results: Iodine was found to be present in the mucus from the mouth, on the tongue, in the pharynx and larynx. A typical reaction was obtained of the iodine the entire length of the trachea to just below the bifurcation into the bronchial tubes. A slight iodine reaction was also found in the upper part of the larger bronchi. No presence of iodine could be found in the smaller bronchial tubes or in the air cells.

A second experiment, conducted on the same day, consisted of placing a dog, weight ten pounds, in the same box. A solution of five per cent methyl blue in glycerine and water equal parts in a two ounce mixture of blandine failed to vaporize sufficient to make a satisfactory experiment, as viewed upon the nasal and throat passages of the dog. Then there was substituted a five per cent solution of methyl blue in blandine to the former methyl blue, glycerine and water solution which had produced a better vapor, but was too liquid to vaporize satisfactorily. However, this latter solution was introduced into the box for twenty-three minutes under the same air pressure as the former experiment, at the end of which time no evidence of methyl blue could be found in the nasal passages, the throat or tongue by inspection, and it was deemed a failure as a test. I was assisted in these experiments

by Dr. Adolph Gehrmann and Dr. E. F. Wells, to whom I am under many obligations.

August the 14th a third experiment was made with a kitten. A ten per cent solution of the trichloride of iron in blandine was vaporized in a box for twenty minutes. The kitten was then killed by a three per cent prussic acid solution introduced per rectum. A solution of ammonium sulphocyanide was then used to determine the presence of iron salts. The result showed a marked reaction in the mouth, tongue, pharynx and larynx. No test visible on the epiglottis, trachea, bronchi or air cells. Dr. Adolph Gehrmann assisted me with this experiment.

August the 14th a fourth experiment was made under the same conditions as the former ones and a ten pound dog was used. A seven and one-half per cent solution of pure iodine used with blandine as a base was introduced into the box for twenty minutes. During the course of the experiment this dog was very much excited and made strenuous efforts to escape from the box, and as a consequence his respiratory efforts were greatly accelerated. At the end of twenty minutes the dog was killed with a three per cent solution of prussic acid injected per rectum, and the starch solution used upon the air passages to determine the existence of iodine. This test was a very satisfactory one. There was a hypersecretion of mucus, which upon test with starch showed the existence of iodine on the tongue, pharynx, larynx, trachea and larger bronchial tubes down to the medium sized bronchial tubes.

Dr. Adolph Gehrmann made a microscopical examination of the mucus, which was found to contain iodine and demonstrated its existence down to the openings of the smaller bronchial tubes. This experiment positively demonstrated that the starch test solution was colored by iodine to the mouths of the smaller bronchial tubes. There was no evidence of iodine to be found in the pulmonary alveoli.

On August the 16th I secured a dog, weighing some twelve pounds, and placed him in a box of the following dimensions: $27\frac{3}{4}$ inches long, $18\frac{3}{4}$ inches high, and 12 inches wide, inside measurement. This would make the capacity of the box equal to $6,243\frac{3}{4}$ cubic inches. A one-quarter inch opening was made in the middle of the top of the box for the entrance of vapor, and a one-half inch opening two inches from the bottom of each end of the box for the exit of vapors. For fifteen minutes a vapor consisting of a solution of equal parts of blandine and a saturated solution of starch was vaporized continuously in the box. During the whole

progress of this experiment the dog remained very passive and quiet in the box without the slightest resistance, and in fact appeared to rather enjoy what must have been to him a novel proceeding. At the end of fifteen minutes the dog was removed, and as there were found no evidences of starch upon the air passages easy of inspection without killing the dog, it was concluded that the starch had not penetrated any considerable distance, and hence a new vaporized solution consisting of twenty per cent solution of iodine in blandine was substituted in the vaporizer. This same dog was allowed to remain in the box twenty-three minutes, at the end of which time he was killed with a twenty per cent solution of the cyanide of potassium introduced per rectum, six drams of the solution being required to produce death, which occurred in three minutes. Upon removing the air passages, the starch test failed to show the presence of iodine anywhere except in the mouth. Also a microscopic examination of the air passages failed in showing the evidences of any penetration of the iodine.

I was assisted in this experiment by Dr. C. D. Wescott and Dr. Adolph Gehrmann.

I am unable to explain the failure of this test to demonstrate the existence of the vaporized inhalant in the air passages, and I believe both Dr. Wescott and Dr. Gehrmann were equally at a loss to understand its failure, as the conditions under which the test was made appeared to be favorable for a successful demonstration. Possibly the inertness of the animal used had something to do with it, as he appeared to make no effort at deep breathing whatever.

In conclusion, it seems to me as a result of quite an extensive experience in the use of vaporized inhalants among patients, as well as in the light of the experiments upon animals quoted, that we are justified in claiming that it is possible for vaporized medicaments to penetrate the air passages as far down as the openings of the mouths of the minute bronchial tubes, and that we may reasonably expect in cases where the inhalants are used that the benefit to be derived is in proportion to the therapeutical relation that the vaporized medicaments bear to the diseased condition. I have purposely avoided any suggestions as to the use of any particular combination of drugs to be used for any given condition in the inhaler. In a general way, I would advise the selection of such combinations as are but slightly irritating to the air passages to begin with, and then as the patients become more tolerant to the action of the medicaments, their strength can be increased as necessary. I have thought that in cases of pulmonary tuberculosis

that considerable benefit was derived by the inhalation of a one-third per cent solution of beach wood creosote, used in solution with some neutral oil as blandine or albolene.

The paper as presented this evening I hope to be but a preliminary one to a series of more extended and extensive experiments which will have for their purpose the demonstration of the extent and permanency to which vaporized inhalants may penetrate the air passages.

FIELD BUILDING.

THE SUCCESSFUL TREATMENT OF DIPHTHERIA.

By JOHN N. WASHINGTON, M. D., CHICAGO.

LATE ASSISTANT IN SURGERY, CHICAGO POLICLINIC.

Modern bacteriological research has proven that true diphtheria is the product of the Klebs-Loeffler bacillus either alone or associated with other bacteria. Besides true diphtheria there is an allied pseudo-membranous inflammation of the same parts, a false diphtheria, which cannot be distinguished from it clinically, except by its milder character. It may be caused by several species of microorganisms.

The success which I have met with in the treatment of this disease has prompted me to give to the profession at large the methods which I have employed in the hope that similar results may be generally realized.

For the purpose of clearly indicating the plan of treatment I have followed, I have selected three instances in each of which from three to five children under the same roof, in fact all the children in the house were attacked at the same time or within a few days of each other, a most appalling condition, as generally such sweeping infection is evidence of malignant character of the disease.

There were eleven cases in the three houses, ten of which I treated. Four of them were of the most desperate character. Three of the others were severe and the remaining three were mild. All recovered. The eleventh case terminated fatally.

In 1883 I heard Dr. J. M. Scott make the statement in the St. Louis Medical Society that he had the best success with those cases which he treated with the mild chloride of mercury and as I had read some time before a monograph by a Pittsburg physician extolling the same drug in this disease I determined to try it fully.

The first case I used it in was in August, 1883. It was the

child of weakly parents, a very delicate boy of three and a half years. He had been sick four days and was profoundly prostrated. His teeth and lips were covered with sordes and extensive diphtheritic membrane was found in his fauces.

I gave him one grain of the mild chloride with one grain Dover's powder, and one and a half grains sodium bicarbonate every two hours until the membrane had plainly commenced to soften and shrivel. I then discontinued it and put him on one grain quinine, and two and a half grains iron and ammonium tartrate every four hours. He took nineteen or twenty grains of the chloride before the favorable effects were manifested.

I used at the same time a concentrated solution of sodium benzoate and glycerine and water locally. He also received a liberal amount of stimulants. He convalesced slowly but completely recovered.

Eight days afterward I was summoned to see the second case, a twenty-two months old child of Mr. H., living in rooms immediately over my former patient. The child had been sick several days and attended by two physicians. It was semi-comatose and dying from laryngeal diphtheria. I procured assistance and performed tracheotomy. The child brightened up, took nourishment and played with her toys, but died rather suddenly presumably of cardiac thrombosis about thirty-six hours after the operation. Trachea was unobstructed.

I did not give her hydrargyrum as she was in a dying condition when I first saw her, but treated her with brandy and digitalis, meat juice and a little sodium benzoate.

On the day she died, the 21st, I was asked to examine the throat of Lizzie S., a thirteen-year old girl, living across the hall in the same house. She had slept the nights of 17th and 18th with the child who had just died.

I found her with high fever and the diphtheritic membrane unusually abundant. I put her on the same powder mentioned previously of mild chloride, Dover's powder and sodium bicarbonate every two hours, and a solution of sodium benzoate two and a half drams to the ounce applied to fauces freely every two hours, also a mild febrifuge mixture while temperature was high. The next morning I noted that membrane had spread somewhat farther, and was told she had an attack of dyspnea during the night. Ordered powdered sodium benzoate to be applied to her fauces.

On 23d, she removed easily a piece of membrane the size of a half dollar from her throat. Continued the mild chloride.

24th. Membrane still abundant, though soft and withered at borders. Right arm is partially paralyzed this morning. The fingers are flexed and she is unable to extend them.

25th. Noted membrane is softer and is loosening, though large surface is covered still. Uvula is one mass of membrane, left tonsil and anterior pillar of fauces also covered; right tonsil not so much. Discontinued the chloride and used a mixture of equal parts of tincture of the chloride of iron and glycerine locally, and a mixture of two grains of chlorate of potassium, twenty drops of tincture of iron, one and a half drachms of solution of acetate of ammonium, with a little glycerine in water every four hours. She recovered satisfactorily.

On 23d, I was asked to treat case 4, her sister Ettie, aged eight years, and on 26th, case 5, her brother Joseph, aged six years, who had also contracted the disease. Both recovered promptly.

I gave forty-one or forty-two grains of the mild chloride to the severest case before it yielded.

On August 5, 1888, I was called to three children on North Eighth Street. Arthur, case 6, aged three and a quarter years, had been sick with diphtheria five days and had been attended by a neighboring physician who had called two of the ablest physicians in the city in consultation at different times. The last consulting physician had told the parents the child could not recover. He was now suffering from intense dyspnea with cyanosis; his harsh whistling respiration being loudly heard in the adjoining room, and diphtheritic membrane was very abundant in his fauces. His nasal passages were also filled with exudate, and discharged a sanious liquid and a number of cervical glands on each side were enormously tumefied.

Intubation or tracheotomy appeared to be urgently demanded, but as he seemed in articulo mortis, and owing to their inability to afford a nurse, and to three in the family having the disease and requiring constant attention, it would have been impossible with the means at command to properly care for him after operation, so I dismissed the idea.

I gave an unfavorable prognosis which the parents were prepared for. Harry, aged six years, case 7, and the baby at the breast, fourteen months old, case 8, also had diphtheritic membrane in their fauces. I ordered two grains of the pure, unmixed mild chloride every two hours for Arthur, and his throat to be mopped with a concentrated pepsin and dilute hydrochloric acid

solution alternately with J. Lewis Smith's iron, carbolic acid and glycerine solution every two hours. His nose was syringed with the pepsin and dilute hydrochloric acid solution alternately with listerine twenty-five per cent.

He was also made to inhale under a croup tent, the dense resinous fumes of burning pine tar and oil of turpentine for thirty minutes, three times a day. He derived perceptible relief from each inhalation and I believe could not have been saved without it.

The treatment of the two other children was somewhat similar, though considerably modified as their danger was not so extreme. On the third day all urgent symptoms being much improved I discontinued the mild chloride and substituted iron and quinine. He took over forty grains of the chloride in two and a half days.

On the fourth day of my treatment considerable membrane being still on his soft palate and tonsils, I used a ten volume solution of peroxide of hydrogen with a soft mop in his throat and the same with a syringe in his nose every four hours. Two days later his temperature was much higher and he was weaker, though his throat was cleaner. I stopped the use of the peroxide and resumed the iron and glycerine.

The peroxide of hydrogen undoubtedly removed the membrane rapidly, but it apparently had a deleterious effect, irritating his throat causing him to refuse nourishment and increasing his fever. This same effect was observed in the case of the baby. The peroxide was the ordinary commercial article. I have never noticed such effects from its use since and think it must have been due to the acidity or impurity of the preparation and also perhaps to its strength. Arthur improved steadily after this. On the tenth day of my treatment and the fifteenth of his sickness I dismissed the case cured. Harry was soon well. The baby's case was especially severe, but she recovered also.

During the spring of 1890, among others I treated the three remaining cases alluded to, all in the same family, two of which were exceptional in several respects.

On March 30 I was called to attend case 9, Willie P., aged seven and three-quarter years. He was an epileptic and had been under the bromide treatment by some other physician till he was so weak he could hardly walk and could not carry a glass of water to his lips without spilling it. On account of his wretched physical condition before this attack the prognosis was certainly bad and I

hesitated as to the best course to pursue with him. I believed he was doomed to die under the wisest management.

I concluded to employ the mild chloride and gave him one grain every two hours until he had taken nineteen grains in the course of forty hours. During most of this time his face was of a dusky hue and he was very stupid, restless and constantly troubled with subsultus tendinum. His pulse was one hundred and sixty per minute. He was also given a mild febrifuge mixture at first, while his pulse was quick and strong and his temperature high.

His throat was treated alternately with a concentrated pepsin and dilute hydrochloric acid solution and J. Lewis Smith's subsulphate of iron, carbolic acid and glycerin solution every three hours. He was also given an excellent wine of peptone well diluted whenever he desired drink, enough to keep him well stimulated.

After the hydrargyrum was discontinued a mixture of tincture chloride of iron, chlorate of potassium, acetate of ammonium, glycerin and water was substituted.

On the sixth day of his sickness he became covered with papules and wheals of urticaria, his urine was very scanty, intensely acid, and so full of sediment I could not tell if albuminous or not. Buffalo lithia spring water freely given and salicylate of lithia relieved these symptoms promptly. Chlorate of potassium was discontinued. On seventh day of his illness I ceased my visits. He made a complete recovery.

Four and a half days later, April 10, I was called to case 10, the eight months old baby brother of last patient, who had contracted diphtheria also.

I had read a statement attributed to Dr. Skene, of Brooklyn, that he cured about ninety-five per cent of his cases of diphtheria by using hydrargyrum bichloride internally and a new preparation called sulpho-calcine locally.

Sulpho-calcine is composed of quick lime, sulphur, benzo-boracic acid, oil eucalyptus, oil gaultheria and extract pancreas. It was expressly directed to be applied on the mop full strength to the fauces. I applied it and my little patient's tongue and lips swelled up frightfully. He kept his mouth open and his tongue protruded and refused the breast on account of the pain in his inflamed mouth. I had carefully observed his fauces regularly and found to my consternation that the diphtheritic membrane had extended entirely over his soft palate. The sulpho-calcine had destroyed the epithelium of the mucous membrane and the false membrane had been rapidly propagated on the side of the lesion.

His inflamed tongue and lips were bathed constantly with cold water with a trace of biborate of soda in it and occasionally anointed with fresh lard. His throat was treated after this with a concentrated pepsin solution exclusively. This was on the third day. He was given one sixty-fourth of a grain of bichloride of mercury every two or three hours from my first visit; but I was afraid of the medicine and am satisfied he was not given enough, as apparently it did not exert sufficient influence on the disease, though given regularly. His bowels not acting, he was given three half grain doses of calomel, which moved him and gave him marked relief. He was given a weak aconite, nitre and bromide mixture about every two or four hours when pulse was strong and temperature high. He was also given plenty of water with wine of peptone in it when thirsty.

I commenced on evening of first day and treated him with inhalations of smoke of pine tar and turpentine for twenty minutes two or three times a day under a croup tent. The effect was beneficial always, as his respiration became slower and easier and he would fall into a quiet, refreshing sleep.

His nose was also involved and closed with crusts and membrane, causing him great distress and preventing him from nursing sufficiently. His condition on morning of third day was extreme. I noted pulse very weak and so fast it was uncountable; will not nurse as tongue and lips are swollen and painful and nose stopped. Two P. M. noted condition worse; very restless. Although he drank large quantities of water and wine, there was almost complete suppression of urine. Applied poultice to lumbar region and gave Buffalo lithia spring water freely. This re-established secretion of urine and brought some relief.

Six P. M., noted pulse 164, very weak, respiration 46, uvula, roof of mouth and entire fauces covered thickly with membrane. Cannot nurse on account of sore tongue and obstructed nose. Insufflated nostrils with Beverly Robinson's powder of sugar, camphor and tannin, which cleared them temporarily and gave him relief. Syringed them also with listerine solution occasionally. Gave him solution of infant food with medicine dropper.

Respiration 11 P. M. 55. Condition desperate. Exposed him under croup tent for thirty minutes to fumes of burning tar and turpentine.

When he entered the tent, he was exceedingly restless, rolling from side to side in his nurse's arms and plainly growing weaker. After breathing the tar smoke ten or fifteen minutes he became

quiet, went to sleep and his respirations fell from fifty-five to forty-six per minute. This treatment was followed three times in close succession.

When making an application to his throat shortly afterward, I was astonished to observe little channels throughout the membrane, in which were seen drops of fluid evidently from its commencing disintegration and apparent liquefaction. The tar and turpentine smoke had rapidly softened and disintegrated it and I believe saved him from choking. No more smoke was needed. The removal of the membrane was completed by the pepsin and dilute hydrochloric acid mixture. He recovered in due time.

Case 11. Bertha M., was the twelve month old cousin of last patient. The disease ran a mild course and was easily managed.

I believe mercury is the physiological antagonist of the diphtheria virus, as quinine is of malaria and salicylic acid of the virus of acute articular rheumatism.

Jacobi, in Pepper's system of medicine, speaks enthusiastically of both calomel and the bichloride in the treatment of diphtheria, though he prefers the bichloride. George B. Fowler is quoted in Keating's cyclopedia as saying calomel is the best remedy we have against diphtheria. He gives one-sixth or one-third to one grain in hourly doses.

Dr. Wm. H. Daly, chairman of the laryngological section of the Ninth International Medical Congress believes strongly in the treatment with calomel. Dr. Coester in same article, is quoted as curing sixty-eight cases out of sixty-nine by the use of this remedy.

Dr. Wm. Pepper is quoted as depending mainly on the bichloride. In Hare's Therapeutics, Rennert, of Germany, is reported as having sixty-two consecutive recoveries from the use of the bichloride. M. R. Hatfield, of this city, has great confidence in the bichloride, and strongly advises its use.

Many of the latest text-books earnestly recommend the use of the same drug.

I give one or two grains of the mild chloride of mercury every two hours or oftener, according to the age of the patient and the gravity of the attack, until unmistakable signs of improvement appear, even if it be necessary to continue the medicine four days or more. I have never seen any untoward results from the administration of this drug, in any amount necessary to control the disease and I have given forty to forty-five grains in the course of four days.

One thirty-second of a grain of the bichloride of mercury in-

creased to one-sixteenth of a grain if necessary, with three drops of tincture of the chloride of iron, well diluted given hourly to a child of two or three years, till marked improvement occurs, is strongly recommended as the best mode of administering this remedy. Many also mop the throat with the solution 1 in 1000.

I believe that skillfully managed auxiliary measures are also requisite, such as a proper local application to the fauces, and also nasal passages if involved, for which purpose I have found that five grains papoid dissolved at the time, in teaspoonful of water, and applied to the throat every two hours, is superior to pepsin or probably any one agent; but if the membrane is extensive, and the disease is stubborn, it is advisable to alternate applications of a four or five volume solution peroxide of hydrogen with papoid.

Cleansing the nose by nasal douche of warm boric acid solution if possible, followed by gentle syringing, with twenty-five per cent solution of listerine or the dilute peroxide is practiced. One cannot be too careful in the operation as serious middle-ear trouble has often been caused by the use of force in making the injection. In bad cases I use stimulants systematically and often energetically. I give also a good wine of peptone and a little Mariani wine.

Concentrated liquid nourishment is imperatively demanded at regular intervals. In case of albuminuria I use poultices to the lumbar region and the free administration of Lithia spring water. I often give Lithia water from the first day. The action of pine tar and turpentine smoke is chiefly local, though it must exert considerable constitutional effect also as it possesses well-known antiseptic qualities and it reaches the lungs, stomach and bowels in liberal quantities, the stools being largely stained with it. A teaspoonful each of pine tar and oil of turpentine is mixed and burned in an iron vessel. It is a most valuable remedy when invasion of the larynx is threatened, but must be used unstintedly. The sublimation of fifteen to forty grains of calomel is strongly recommended in the recent text-books for this desperate condition, and I am satisfied it is a very valuable procedure.

I have never seen a child suffering with diphtheria fail to get well under this method of treatment if the case is undertaken at a reasonably early stage of the disease, and I feel confident that in a severe case when everything else appropriate has been done, if hydrargyrum in sufficient quantity has been omitted from the treatment, the most skillful management will fail.

It is recognized that anti-toxin with its almost infallible con-

trol over this disease, and power to confer immunity on those exposed to its dangers, will probably supersede all other modes of treatment when it becomes available for general use, but until then we will use our well-tried remedies which long experience have proven worthy of reliance.

257 EVANSTON AVENUE.

REPORT OF A CASE OF ILIAC COLOTOMY.

By JOSEPH B. BACON, M. D., CHICAGO.

PROFESSOR OF RECTAL DISEASES IN THE POST-GRADUATE MEDICAL SCHOOL.

Mrs. Fannie F., entered the Chicago Charity Hospital August 11. Referred to me by Dr. Stowell. Patient gave the following history: Age fifty, domestic, colored. Was born a slave, and can give only an imperfect family history. Mother died of consumption, as did also patient's second husband; patient had excellent health until shortly after marriage. Sixteen years ago she contracted syphilis from her husband. About three years afterward she began to have pain with slight hemorrhage from her bowel when she went to stool, and shortly afterward in addition to these symptoms she began to suffer from constipation. This condition went from bad to worse. In the meantime she consulted numerous physicians and received treatment with laxatives and cathartics, none of them making an examination until nine years ago, when the bowel refused to respond to cathartics. She consulted Dr. Stowell, of Chicago, and he after examination diagnosed the case as stricture of the rectum, and under an anesthetic divulsed the stricture.

After this operation patient felt quite well for several months, when the previous symptoms began to return, and at the end of three years from the previous operation, she entered Cook County Hospital and was operated on again. This last operation was six years ago. Following this second operation patient was able to do housework again, and had several years of comparative relief, but for the past two years the pain, tenesmus and constipation have been constantly increasing, together with attacks of pelvic inflammation, high fever and great loss of blood per anum, and enormous quantities of mucous and pus. During the past year she has had incontinence of feces, the mucus and pus and liquid feces constantly leaking from the anus.

Read before the Military Tract. Medical Society, October, 1894.

When she came under my care August 11, 1894, she was a mere skeleton, very nervous, with every symptom of being a great sufferer. I ordered the patient to bed, prescribed a strict milk diet and arranged to examine her under an anesthetic the 13th. Her present condition was too serious to risk any effort at making a diagnosis. August 13, with patient under profound anesthesia, I made an examination of the anus and rectum and found the following conditions: Skin about the anus excoriated and inflamed. Pus and bloody mucus escaping from the anus; external sphincter, hypertrophied and adherent around its upper border to a dense cicatrix, preventing the muscle from contracting to close the anus. On passing my finger through the external sphincter, it encountered a firm circular cicatrix that had entirely destroyed the internal sphincter. Upon gentle pressure my finger engaged a tubular stricture extending beyond the reach of the finger, with a caliber barely admitting its passage, the surface was filled with granulation tissue, the rectal walls were entirely involved in the cicatrix and the whole mass so adherent to the pelvic tissues and fascias as to be immovable and the whole pelvis seemed a solid exudate.

I made a diagnosis of a syphilitic tubular stricture of the rectum and anus, and as it was too adherent to the pelvic tissues for removal by resection, I advised colotomy and ordered the patient to be fed upon a nourishing liquid diet with tonics and stimulants to get her in condition for the operation.

August 28, assisted by Drs. Ferguson, Keith, Darbin, Stowell and Burr, I performed a left iliac colotomy after the method of M. Maydl. An incision two and one-half inches long, and one and one-half inches internal to the anterior superior spine of the ilium, and a line parallel with Poupart's ligament was made through skin, muscles and fascia down to the peritoneum, all bleeding vessels being twisted, the peritoneum was now seized with two pairs of entry forceps and a small opening made into the abdominal cavity. Passing one finger through this opening as a guide, I enlarged the opening by cutting peritoneum with a probe pointed bistoury back to the angles of the wound in the abdominal muscles.

The forceps holding the peritoneum were now made to draw it out to the edge of the skin to which it was sutured along both sides of the incision. The colon was now seized and drawn through the wound and a glass rod passed under it and through its mesentery, the ends of the rod resting upon the abdomen at each

side of the incision. With interrupted sutures the loop of colon was now stitched to the peritoneum near the border of the skin.

A sterilized piece of dental rubber sheeting four by four inches was now placed over the loop of gut, and a thick pad of iodoform gauze and sublimated cotton completed the dressing. A firm roller bandage being applied to hold everything securely in place.

The patient's bowels having been repeatedly flushed before the operation, there was no need for opening the bowel for ten days, she being confined to a liquid diet and constipated with opium. The dressings were changed every third day, and on the tenth the bowel was opened by means of a Paquelin cautery, turning transversely across the bowel down upon the glass rod, thus completely severing the sigmoid and making it impossible for any feces to enter the distal end of the gut. The patient left the hospital October 7, with good appetite and regular bowel action.

This case is peculiar and interesting from the fact that the mesocolon was so short that the colon could not be brought into the wound until the abdominal walls were depressed and the rod thus passed under it. Any other method than Maydl's would have been impossible as the sutures would have been put upon so great a strain that they would have cut through and let the gut fall into the abdomen. Such an accident has been reported by Allingham and the patient died.

Verneuil reports one case where he failed, and abandoned the operation on account of a short mesentery.

Fortunately the mesentery is usually quite long enough and in many cases permits one to draw out a large loop and excise it as recommended by Allingham.

The first authentic history of iliac colotomy was that by Littre, who suggested it about one hundred and eighty years ago for relieving children that were born with an imperforate anus, but he never operated. Sixty years later Pillore, of Rouen, performed the operation on the right side, thus opening the cecum.

In 1839, Amussat introduced the lumbar operation, and this took the lead on account of the dread of opening the peritoneum until within recent years the inguinal has become popular and is now almost exclusively performed, when the obstruction or disease is limited to the rectum or the lower end of the sigmoid.

The advantages of the inguinal over the lumbar colotomy are :

1. The rapidity with which it can be done in an emergency.
2. The better spur formed after the operation.

3. The cellular tissue is so limited there is far less danger of inflection than in the lumbar incision.
4. The great advantage to the patient in attending to the toilet.
5. The better sphincter control afforded by the abdominal muscles.
6. The advantages of being better able to fit a truss pad in this region.
7. The advantage of using the incision for exploring the pelvis and abdomen before completing the operation.
8. The decreased danger of wounding other organs while performing the operation, such as the kidney, duodenum, etc.
9. The better position afforded for giving an anesthetic. A very important point when patient is suffering from collapse.
10. The gut can be drawn out and resected if necessary, so as to avoid a prolapse after the operation in cases of very long mesentery.

VENETIAN BUILDING.

CASES AND EXHIBITION OF PATIENTS.

By DR. A. D. BEVAN, OF CHICAGO.

At a recent meeting of this society, Dr. M. L. Harris read a very interesting and instructive paper on the operative treatment of old dislocations of the hip and irreducible dislocations of hips. I present this boy as a case demonstrating the necessity and value of operative procedures in old and irreducible elbow joint dislocations.

This patient sustained a backward dislocation of both bones of the forearm about four months ago. An effort was made at the time to reduce the dislocation but without success. Two months later he was brought to my service at the Presbyterian hospital. A prolonged effort at reduction under chloroform was made. I used as much force as I thought justifiable, but failed. A week later I opened up the joint by a straight posterior incision six inches in length. The condition which prevented reduction was at once evident. The external epicondyle had been completely broken off from the rest of the bone and was lying in the olecranon fossa and was grasped by the olecranon process, conditions making

Chicago Medical Society, October 1, 1894.

reduction absolutely impossible. The broken epicondyle was removed, some soft granulation tissue filling the olecranon fossa scraped out with a sharp spoon, the dislocation reduced and external incision closed. To-day, two months after the operation, the boy can completely extend the forearm upon the arm and can flex the forearm to a right angle. The range of motion is increasing. The operation has succeeded in converting an almost useless into a very useful limb. If the operation had been done, as it should have been, within a few days after the receipt of the injury, as soon as it had been demonstrated that reduction by manipulation and extension could not be accomplished, the result would have been perfect restoration of function. The operative treat-



ment of old and irreducible dislocations is to be regarded as a standard procedure. I am inclined to the opinion that further development in this line will show that the majority of irreducible dislocations are made irreducible by some complicating fracture or the interposition between the bones of some ligament, fascia tendon or muscle, conditions which must be removed before reduction can be accomplished. The lesson which such a case teaches and the lesson we are rapidly learning is to operate on irreducible dislocations as soon as it is demonstrated that they are irreducible.

The second case which I present is to me very interesting from a pathological standpoint. This man had, as this profile photograph shows, a large tumor in the sacral and coccygeal re-

gion; the growth was first noticed seven years before. The mass projected into the pelvic cavity. It seemed to spring from the position of Luschka's gland. The interesting question as to whether or not the tumor grew from an embryonal rest, and therefore is or is not an example of Cohnheim's theory could not be demonstrated on section.

The operation involved the removal of the lower half of the sacrum, of the coccyx, the sacro-sciatic ligaments, and the superficial portion of the ischii to which these ligaments are attached. The sacral canal was opened and the fifth and fourth sacral and the coccygeal nerves removed. The power of the external sphincter was temporarily lost. He now has control over the lower bowel.

On section the mass was found to be a mixed tumor, containing cartilage, bone and fibrous tissue elements, a large part of the growth had undergone myxomatous degeneration. In spite of the lack of histological evidence to support the statement, the peculiar position and form of the mass incline me to the belief that the tumor sprang from an embryonal rest.

This specimen of vesical calculus I removed a week ago from a man seventy-two years of age, by suprapubic cystotomy. I present this specimen because it may be of interest on account of its large size. It is the largest stone I have ever seen removed; it weighs 3,500 grains.

RUSH COLLEGE.

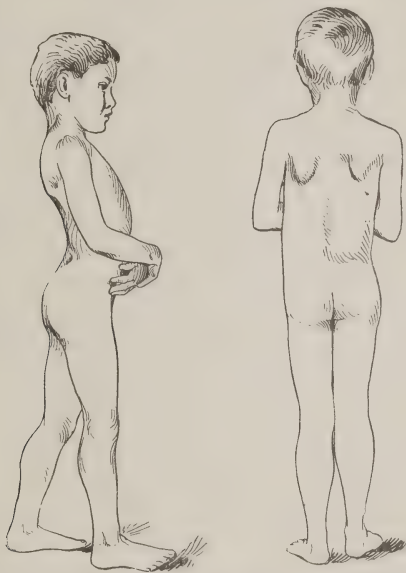
REPORT OF TWO CASES OF PSEUDO-HYPERTROPHIC PARALYSIS IN BROTHERS.

BY DR. ARCHIBALD CHURCH, CHICAGO.

The following cases were referred to my service at the Chicago Polyclinic, by Dr. A. E. Hoadley:

Joseph S., eight and a half years old, of foreign parentage, his father a Bohemian, and his mother a German. The family history contains only one instance of nervous disease, the nature of which cannot be learned with precision. The mother states that her brother became more or less helpless about the age of six years, and progressively grew more so until he died at the age of fourteen. On the father's side a sister is asthmatic. No cachexia is reported on either side and both parents present the appearance of excellent physical health and ordinary mental strength.

The boy was born after a protracted labor, but presented nothing abnormal until the age of six months when he had a high fever of short duration, which was followed for two or three weeks by convulsive attacks occurring frequently every day. Since that time they have not reappeared. It was immediately noticed that power had been lost in the muscular system and the child was no longer able to hold his head up or to sit erect. He was not able to walk until about two and a half years of age and then did it very clumsily and has always up to the present time, walked in an awkward manner. He has not developed full mental powers, being



From photographs, showing enlarged calves and scapular muscles, weakened dorsal and serratus muscles and sway back.

slightly subnormal in ability to learn, and his speech is still infantile in character. His physical functions are performed with satisfaction in all respects except such as pertain to the muscular system. There is no evidence of involvement of any of the cranial nerves.

Special senses and general sensation are intact. The boy walks in an incoördinate, staggering manner, and when stripped presents notable exaggeration in the development of certain muscular groups, associated with great weakness in antagonistic muscles. The calves are very greatly overdeveloped, showing marked disproportion in comparison to the thighs, and by the ordinary test

of standing on the toes and attempting to flex the foot upon the leg against resistance, the calf muscles show unusual power. However, the boy is unable to extend the leg upon the thigh with any force, or to flex the thigh upon the body, so that in the effort to place his foot upon a low stool he requires to swing it from the pelvis, and this weakness gives rise to great disability in going up stairs. The glutei muscles are not particularly modified in size though apparently weakened, allowing the pelvis to tilt forward upon the heads of the thigh bones, producing an antero-posterior curvature of the spine, which is also associated with a slight lateral deviation, giving a swayback appearance. The muscles of the scapula, especially below the spine are greatly increased in size and feel like fatty tumors, while great weakness is shown in the serratus muscles allowing the scapulae to spread widely from the chest weakening materially all movements from the shoulder. The erector spinae muscles are also weakened, as shown by the inability to sit up for any length of time, as at school, without discomfort, and from the constant sitting attitude assumed in which the upper portion of the trunk is supported by the elbows resting upon the knees, as also by the swayback tendency above mentioned. The small muscles of the feet and hands, and the muscles of the upper extremities, with the exception of the deltoids, which are somewhat enlarged, do not seem to be involved. The enlarged as well as the shrunken muscles show a diminished reaction to all forms of electrical stimulation, but not the reaction of degeneration. Sphincter control is not diminished.

The second boy, Eddie S., one year younger than his brother Joseph, is an inch and a half taller and correspondingly larger in all proportions. He presents exactly the same features as his older brother but in a less marked degree. Like his older brother he had a febrile attack, but at the age of one year, which was also followed by convulsions for a few days.

When the boys are placed upon the floor they have great difficulty in securing an erect position and only accomplish it by the process of climbing up their own thighs, first getting on all fours, and standing is maintained largely in a ligamentous way, the muscles from thigh to pelvis and pelvis to spine being called upon to do as little as possible, in the attitude assumed.

REMARKS. The interest of these cases consists in their being quite characteristic, presenting all the notable features of the typical cases originally described by Duchenne, and manifesting the progressive involvement so notable in this variety of hereditary

disease. As is usual, it seems to have descended by the mother's side, and involves the muscles characteristically selected. The enlargement of the calves, glutei and infraspinatae muscles is common, as is the weakening of the serrati, flexors of the thigh, extensors of the leg and flexors of the foot. The electrical conditions are those usually found. It has not been thought necessary to make incisions or to otherwise secure portions of the enlarged muscles as their histology is very thoroughly understood.

The disease was primarily considered a spinal trouble, subsequently it was looked upon as a simple muscular dystrophy, as no uniform or significant changes were found anywhere in the spinal cord in these cases, such changes as were reported probably being due to secondary atrophy. Recently von Babes¹ has by a new process of nerve straining discovered peculiar changes in the muscle plate terminations of the nerves both in this disease and in the allied condition of infantile muscular atrophy. According to this observer certain nerve plates are rudimentary in character and certain others present evidences of degeneration, no degeneration being apparent in the corresponding peripheral nerve twig, and as already indicated, no changes being discoverable in the spinal gray matter.

These cases are clearly instances of developmental defect, or rather developmental deficiency. The nervous apparatus seems sufficient at the time of birth and sometimes for a few years afterward but when severely taxed by infectious disorders or the rapid growth at developmental epochs of life, as about the age of the second dentition, of puberty and of adolescence, fails to respond to the increased demand and defective growth is the result. Subsequently changes probably of an involutional character take place with the resulting alterations in the nerve terminals and eventually in the more central portions of the nervous system. As the functional activity and the nutrition of the peripheral nerves and of the muscles to which they are distributed is under the control of the spinal gray matter it is not inconceivable that a lack of functional power, or even of anatomical characteristics as yet unrecognizable by our means of investigation, may be the primal stage of the disease.

Regarding treatment, everything of a medicinal nature has failed to give any improvement, and reliance must be placed, for temporary benefit, upon the careful and graduated exercise of the weakened muscles, with massage and local applications to increase

¹*La Romaine Medicale*, August, 1894.

their nutrition. Substituting the functions of weakened muscles by apparatus or braces rapidly results in the deterioration of the muscles so relieved. Electricity ordinarily is unavailable, owing to the large and painful currents required to cause response in both the wasted and enlarged muscles.

The prognosis of course is most unfavorable and the great majority of cases die between the ages of twenty and thirty from gradual exhaustion or the incidence of some accidental disease.

PULLMAN BUILDING.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH,
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held October 1, 1894, in Commandary Hall.

President SENN in the chair.

The minutes of the preceding meeting were read and approved.

The committee on membership reported favorably on the applications of Drs. Ada M. Phelps, 70 State Street, and W. C. Raymond, Mercy Hospital, and on motion, the Secretary cast the ballot of the society for their election.

A CASE OF MYXEDEMA.

Dr. A. H. TAGGART in presenting a case of myxedema, said: This lady is about sixty years old. She had previously to four years ago, been quite healthy. Her family history is good. Examination of the urine and blood were negative. About four years ago she had the grippe, and since then she has been troubled a great deal with what she calls a "heaviness and sleepiness," so that many times when she sits down to dinner, after eating a mouthful or two she will go to sleep and sleep until five or six o'clock. Even when preparing to retire at night, after taking off one shoe, she may drop to sleep in her chair. For about two months she

has been taking thyroid extract. The mental condition has greatly improved, and there has been some improvement in the physical condition. The skin looks much better, the coarse, dirty epithelium has mostly disappeared. I do not find any thyroid gland. You will notice the characteristic blush on the cheek, the fullness on the sides of the neck and flatness in front. You will observe there is a firm hard feeling elastic edema, not pitting on pressure like the ordinary serous edema. Her speech is very slow, but is very much better than it was. She has been taking seven drops of the thyroid preparation three times a day.

EXHIBITION OF CASES.

Dr. ARTHUR DEAN BEVAN reported : 1. A case of old dislocation of the elbow joint, and exhibited the patient. 2. Removal of coccygeal tumor, with exhibition of patient and photograph. 3. Large calculus removed by suprapubic cystotomy.

A paper entitled

THE IDEAL OPERATION FOR VARICOCELE.

was read by Dr. G. FRANK LYDSTON.

Dr. L. L. McARTHUR read a paper, see page 289, entitled

THE PROPER METHOD OF INCISING THE ABDOMINAL WALL, ESPECIALLY FOR APPENDICITIS.

Dr. J. B. MURPHY : I am very much pleased with Dr. McArthur's paper, and if his results in opening an abscess in that manner can be obtained by the balance of operating surgeons, he certainly has done a great deal for abdominal operations, particularly for appendicitis. Operation for suppurative appendicitis is the only one in which we cannot sew the wound, but must maintain it approximately as it is, and if the opening in the abdomen can be made secure by this method and hernia avoided it will be a great advancement, and I think will overcome the greatest objection to the operation. Whether dividing the muscles in that position in place of cutting them transversely will give that result, admits of question. It has in his cases. The support of the abdomen is not due so much to the muscle itself, as to the fascia ; we know that we can readily split the muscle with the end of the scalpel and it gives but little resistance. In many cases of appendicitis we find the appendix adherent as far forward as the semilunares. We have the tendon of the muscular fibers of the external and internal oblique, and an incision made in that position I would expect to give less than when made close to the anterior spinous process.

I think at present there is a very wide range of opinion as to the position of the incision in appendicitis. Formerly I advocated the incision Dr. McArthur does now; that is, cutting into the highest point. Now I make it an object, particularly when the appendix is on the right side, and it is there in the majority of cases, to cut toward the center and to open the peritoneal cavity primarily, then locate the adhesions. Then if I pack gauze on the proximal side of the incision I can control the direction in which the pus flows almost absolutely. I remember only one case in which we lost control of the pus, and it passed down into the pelvis. I do not simply drain the abscess as I formerly did. I find in a number of cases there are multiple abscesses. A few days ago I had a case of this kind, an abscess presented near the surface; I cut on the proximal side, and opened a small abscess which had no connection with anything that felt like the appendix. This was five days after the initial symptoms, and I was convinced that it was entirely separate from the primary abscess. The adhesions were separated further, and I found a second abscess, but still no appendix, and as far as I could ascertain it had no connection with the lower abscess, and by exploring further I found a third abscess in which was found the appendix, perforated with a fecal stone; if this first abscess had been opened through the parietal peritoneum without opening the general peritoneal cavity, I would not have rescued the patient from danger, and I believe that some of my earlier cases were lost because I did not open all the abscesses. I think we have been led to this belief more particularly by work on the tube. Formerly we believed in draining the tube through the vagina and through the parietal wall, but latterly such a man as Price has shown that as a rule there is more than one abscess. I believe we will find the same thing in appendicitis, not in the majority, but in many of the cases, and that the time for opening into the abscess primarily without opening the peritoneal cavity is rapidly drawing to a close. Why? Because physicians as well as surgeons are beginning to recognize the fact that appendicitis is a surgical disease, and are beginning to make a diagnosis before the fifth or sixth day. They now make a diagnosis as early as twenty-four hours, which can be done in a large percentage of the cases. If it is to be a surgical case at all, it should be at that time, and the incision then should be one that would permit of the easiest removal of the appendix at that time. We expect to be able to liberate it because the adhesions are not formed.

As to this method of cutting the wall, I hope, and from the

doctor's extended experience believe, that it will prove true, that by this method we will get a firm union of the abdominal wall, which will be the greatest advancement that has been made for appendicitis in the last three years.

Dr. FERGUSON: In operating upon appendicitis my rule in making the incision is to commence at a point near the internal abdominal ring, extending upward parallel with Pupart's ligament, about three-fourths of an inch above it to a point depending upon the extent I want to cut, giving myself sufficient room to see every step of the operation. Separating the fibers of the external and internal oblique and the transversalis as you get to them is good as far as it goes, but in a great majority of cases you do not get very far until you have to go through structures which are agglutinated by inflammatory products, and then you would have to be guided by pathological landmarks instead of anatomical ones. If I find I cannot get through the abdominal wall by separating the muscles it is my practice to keep as near the anterior superior spine as possible, and open the general peritoneal cavity before opening the abscess. This has been my rule for this reason: when by percussion and palpation you find a thickened mass underneath your finger the whole wall of the bowel, the peritoneum and the transversalis fascia are converted into a granulated mass of tissue and if you continue cutting you may enter the bowel, but by taking a certain portion of the peritoneum which is normal and opening there you can explore and locate the adhesion and then you can wall off the peritoneal cavity with gauze so thoroughly as to prevent the access of pus. Then, if possible, cut out the abscess from without. Abscesses are sometimes very small, sometimes superficial and in a certain portion of cases behind the bowel altogether, where they may have to be opened externally in the lumbar region in order to be properly drained. I have met a few cases where the abscess had formed in a serpiginous manner, and these serpiginous tracks of pus may resemble multiple abscesses. I have only seen one case of multiple abscesses.

Dr. E. W. ANDREWS: It has been my fortune as an associate with Dr. McArthur in one of the hospitals to have operated with him in quite a number of cases and to have seen this method very successfully tried. We have wandered into a discussion of the general subject of appendicitis which is too big for one evening. As to whether or not we should operate for appendicitis without removing the appendix, or whether we should make a small opening and simply drain, are questions that can only be settled in each

individual case. Of course there are cases that come to us in such a late stage that the safest thing for the patient is the simple drainage of the pus cavity, and all other operative procedures would certainly add to the risk for the time being, the question of removing the appendix being left until such time as the patient has reacted from that attack. There will always be, therefore, many cases where the surgeon's sole aim is saving the life of a patient in great danger, and this must be accomplished by the quickest and safest drainage only. It is in such cases that this clever mode of incising is especially valuable. It does not seem to me of equal value in those laparotomies, properly so called, which we make for operation in the intervals of attacks of appendicitis, where a fistulous tract must be dissected out.

Dr. S. C. PLUMMER: As the question of priority of this method of incision may come up, I would state that at least a year and a half ago I assisted Dr. McArthur to operate on a case in which he made the incision according to the method described by him to-night.

Dr. A. D. BEVAN: I can easily understand the great value of this incision in draining an abscess, but the ideal operation is to remove the appendix before the abscess has formed, and I would ask whether this incision gives enough room for the removal of the appendix at that early stage?

Dr. L. L. McARTHUR, in closing the discussion said: In presenting the subject of appropriate incision for appendical abscess I was fearful that it might provoke a discussion of the general subject, although I did not intend that it should, but inasmuch as it has done so to a slight extent, in rebuttal I would like to say that one's own experience may bias him strongly in one way or another. Certainly I have been well pleased with simply draining the abscess and letting the appendix alone, securing fifty-eight recoveries out of fifty-nine cases; draining fifty-five times without opening the general abdominal cavity, and when I opened the abdominal cavity closing it again before opening the abscess. This low rate of mortality will strongly influence me to continue that method until some other is offered which appears to be better. It must appear to every medical and surgical man that if the abscess can be opened and drained without entering the general abdominal cavity the mortality must necessarily be very much less and the risks decidedly smaller. If recovery will take place by simply draining the abscess without removing the appendix, I think we will all be inclined to drain. I have operated upon

eighty-nine cases of appendical trouble and have not yet had the fortune to meet with a double abscess. I have found them burrowing up behind the colon under the liver and in various directions, I have opened an abscess well over toward the left superior spine but not one proved to be a double abscess.

As to the best method of incision I think that one best which does not cut the abdominal wall. A perpendicular incision extending for instance from the external ring as mentioned by Dr. Ferguson will paralyze certain segments of the rectus muscle. If the abscess is under the linea semilunaris it must be quite small, and if it extend to either side one must cut the rectus or the transversalis and oblique in part or separate their fibers. When it is so small as to only involve the linea semilunaris a small puncture large enough to permit the entrance of a drainage tube is all that is necessary, and it gives extremely little risk for the patient. I made such a puncture yesterday and Dr. Hoag can testify that the chance of hernia through so minute an opening with the abscess immediately behind the opening was very slight. I would say to Dr. Andrews in regard to this being a good method for the total removal of the appendix between the attacks that McBurney in the *Annals of Surgery* recommended this operation not for abscess but for the removal of the appendix thus securing an abdominal wall which had not been cut, and therefore showed very little liability to hernia.

THE BRYSON SYMPTOM IN EXOPHTHALMIC GOITER.

Dr. HUGH T. PATRICK presented the results of his investigations regarding this symptom which consists in diminished chest expansion enforced inspiration and to which attention was first called by Dr. Bryson in 1889. She considers it one of the "distinctive fixed conditions" in this disease and of especial importance as shedding light upon the prognosis and pathology and hence as a valuable indication of the proper line of treatment.

After taking the chest expansion in a number of cases it seemed to the author that the symptom depended simply upon the general muscular state of the patient and he then began to use the hand grasp as registered by the dynamometer as a means of comparison. Forty undoubted cases of exophthalmic goiter all in females, were measured from one to six times and as a basis of comparison twenty-eight women with normal chest expansion and hand grasp. The average chest expansion of the cases of Graves' disease was found to be diminished $10\frac{1}{2}$ per cent, the hand-grasp

22 $\frac{2}{5}$ per cent, and the author concludes that diminished chest-expansion, although present in a considerable number of cases of exophthalmic goiter is in no wise a pathognomonic or even an important symptom; that it has no particular bearing upon the diagnosis, prognosis, pathology or treatment, and should be relegated back to the comparative obscurity of an individual in a large community of manifestations which all alike depend upon the general state, a state which makes the French designation of the disease, exophthalmic cachexia, quite as appropriate as any other.

Dr. FRANK BILLINGS: I agree with Dr. Patrick in what he has said on this subject. I have never considered the sign of any great importance although I have not had the experience Dr. Patrick has. I think the doctor has put the whole matter into appropriate and condensed words when he says that a great number of these so-called pathognomonic signs can be comprised in the term exophthalmic cachexia. I think this particular sign depends, in a great measure upon the tiring out of the patient who suffers from the disease, and in my opinion the passing away or improvement in many of these symptoms is due to the improved nutrition of the patient. In the last two years I have been experimenting somewhat on the treatment of this disease. I have used in all cases hypodermics of strychnia sulphate, carrying it as high as a fourth of a grain in twenty-four hours and at the same time pushing nutrition as far as it can be done with simple food. I have been surprised at the result; the passing away of the tremor, the improvement in the respiratory symptoms, the improvement in the dyspnea upon exertion, and the improvement in the blood state of the patient.

THE PRESIDENT: Do you make the injections into the goiter swelling, or anywhere?

Dr. BILLINGS: The injections are not made into the swelling but usually into the thighs; one of my patients has taken over six hundred hypodermic injections of strychnia with so much improvement that I think she is practically well.

Dr. W. F. COLEMAN: I would like to ask a question of Dr. Patrick as to his view of the pathology of exophthalmic goiter. It does not seem to depend according to him upon diminished chest expansion. I believe the pathology usually accepted is that it is due to vasomotor paralysis. I want to ask Dr. Patrick, who seems to have had a most remarkably rich experience, whether palpitation was the most constant symptom of the disease, also whether the right thyroid gland was in a number of cases exclusively affected, and

whether the disease was complicated in a considerable number of cases with glycosuria?

Dr. J. M. PATTON: I have been considerably interested in Dr. Patrick's paper, and I am heartily in accord with his conclusions in the matter; first, because it was taken for granted entirely too readily by the profession that this symptom was of importance in the diagnosis and prognosis of Graves' disease. It was stated by Bryson in 1889, I believe, that she had seen a number of cases of Graves' disease in which it was present. It is stated that an expansion of not over half an inch gave an absolutely fatal prognosis, but with an expansion of one inch the prognosis was favorable. It is very peculiar that such statements should be made after so little observation. As far as the diagnosis goes the symptom is not present with sufficient regularity to give it importance, because when it is present it is only in the most severe cases or after the disease has been very thoroughly developed. In fact, as Dr. Patrick has analyzed it, it is the result in all probability of the loss of muscular power and comes late in the disease. It does not come as early as the tremor of the muscles of the extremities, and even the fibrillary contraction of the muscles of the extremities is often attained earlier than is the loss of expansion. As far as prognosis goes, we must take into consideration that the majority of these cases are in women in whom chest expansion is notoriously irregular; they are all well-marked neurotics of various types in whom chest expansion is decidedly irregular; an expansion of less than one inch often obtains, and the expansion will often increase as Dr. Billings has described, with the general increase of the nutrition of the patient.

Since this symptom was first described I have had under my charge eight cases of exophthalmic goiter and in looking over the record I find that in only one case was this symptom present in such a degree as to attract special attention. In that case expansion was a little over half an inch, in an extremely neurotic woman. In another case there was perhaps diminished expansion but not enough to attribute it to the disease. In my experience the Stellway's sign, Becker's sign, von Graefe's sign and Moebius's sign, have been present in about the order mentioned. Von Graefe's sign is due I think to the general lack of muscular innervation as Dr. Patrick has stated and therefore its presence would depend largely on the general nutrition of the patient. In my experience it has not been present early. In late years we are drifting somewhat away from the supposed etiology of the disease of a few

years ago and getting around to the opinion stated by Dr. Billings. This calls to mind the statement of Dr. William H. Thompson less than a year ago, that he considered a large number of instances of this disease, if not the majority, were due to disturbance of the intestine; possibly intestinal indigestion and subsequent disturbance of the general nutrition.

Dr. H. T. PATRICK, in closing the discussion, said: I cannot answer the last part of Dr. Coleman's question. I studied these cases more especially with reference to this symptom. Palpitation, if the doctor means by that rapid heart action, tachycardia, I consider the most constant of all the symptoms and of the three cardinal symptoms, I think it is the most important. Cases with exophthalmos and goiter present but not pronounced and with no tachycardia, I should be loathe to diagnose as this disease, unless a number of minor symptoms were present. I did not wish to say anything about the treatment. I am very glad Dr. Billings has had so much success with strychnia. I have seen these cases treated in a large number of ways, but have not seen one case that did not improve under treatment. I have seen them treated by galvanism in various ways, by Faradism exclusively, by resting in bed without any other treatment. I have seen them treated by hydrotherapy, and Bryson claims good results from her graduated gymnastics. I have seen them treated with various drugs, including strychnia and strophanthus; the latter drug I have used myself. I have seen digitalis used, although it is almost universally condemned in the treatment of this disease, and in every case I have observed long enough to be entitled to give an opinion, there was some improvement, I think mostly because rest and avoidance of excitement were enjoined alike by all the physicians. I was careful to state that in none of the published articles of Bryson has she said that a chest expansion of half an inch indicated an absolutely fatal result. Hammond quotes her as saying so, but it was presumably a verbal communication. Dr. Patton is simply in error in his allusion to her article of 1889, as she gives no number of cases, no measurements, and in fact no extensive data whatever. In her article three years later, in 1892, she gives the result of investigation in thirty cases, but only twenty in regard to chest expansion.

I do not think we are justified in saying that we know anything about the pathology of Graves' disease. The sympathetic system has its adherents, who are on rather weak legs at present. The medulla oblongata people are a little firmer and in better shape. One of the latest and to me the most seductive theories

considers the disease to be the result of some sort of toxemia arising in some way from the loss of function or perverted function of the thyroid gland. Greenfield has made extensive investigations of the thyroid in these cases and has shown that where it is not very much enlarged yet it is decidedly changed in structure, and this theory has gained many adherents. I have not heard of any one taking up Thompson's theory of intestinal intoxication. I do not think we have evidence enough to support any theory. One of the best recent reports in favor of the medulla oblongata as the seat of the disease is by Müller on autopsies in Gerhardt's clinic. He found dilatation of arterioles and small hemorrhages just below the floor on the fourth ventricle, but we know these vessels are naturally large and the walls thin. It is not many days since I made sections of a cat's medulla in which there were copious capillary hemorrhages, one at least which was sufficiently large to be seen by the naked eye. There was nothing the matter with the cat except some weeks previous he had undergone a section of the cord, otherwise he was perfectly healthy, yet there were large hemorrhages there. Müller in his report states that in all the hemorrhages he saw, the blood corpuscles were in good condition, there was no sign of blood pigmentation or old changes. Graves' is not an acute disease, and if this vascular change in the medulla could have in any way given rise to the condition, we would expect something more than a few extravasated blood corpuscles.

On motion, the society adjourned.

JUNIUS C. HOAG, Secretary.

A regular meeting was held October 15, 1894, in Commandery Hall.

President Senn in the chair.

Dr. ALFRED HINDE read a paper entitled

CONTRIBUTION TO THE STUDY OF THE VISUAL CEREBRAL CORTEX AS
SHOWN BY A CASE OF MONOCULAR AMAUROSIS.

Dr. JAMES A. LYDSTON: When we consider the complicated arrangement of the optic nerves and the brain structures that are implicated in the case reported this evening, we are not surprised at the complexity of the topic. We must remember further, in order to appreciate the various conditions that arise physiologically as well as anatomically speaking, the minute anatomy of the optic nerves and of the portions of the brain involved in the supposed

changes to which the essayist refers. The optic nerves, as we know, take their origin in the thalami optici and the corpora quadragemina, receiving filaments from the corpora geniculata, tuber cinereum, lamina cinerea, the anterior perforated space, the gray substance of the brain, and the posterior columns of the spinal cord. The fibers run forward as optic tracts beneath thalami and across the crura before the infundibulum, where they unite to form the optic chiasm, in which they decussate, the chiasm rests on the olivary process of the sphenoid bone. From the inner end of each tract fibers cross to nerve of opposite side, the greater part run directly without crossing to outer half of retina of same side.

Accepting as we do the theory of semidecussation of the optic nerves, we must, before reaching such conclusions as are asserted in the paper, take into consideration not only the anatomical distribution of the optic nerves proper, but the minute arrangement of the optic nerve fibrillae, and we know that a variable arrangement characterizes the optic nerve fibers. I have always looked upon the subject of amaurosis, as well as amblyopia, as nothing more nor less than an exaggerated type of hemiopia. We know certain fixed things relative to hemiopia; first, if we have a monocular defect or defects in the visual fields of both eyes, asymmetrically situated, then the defect lies anterior to the chiasm. Secondly, in temporal hemiopia the lesion lies in the chiasm. Third, in homonymous hemiopia, as well as in all cases in which there are binocular symmetrical defects, the lesion is situated on the central side of the chiasm. Again, if there is absence of the pupillary light reflex, which is known as Wernicke's pupillary reaction, the lesion must lie below the point at which the fibrillae to the oculomotor distribution are given off. If, however, the pupillary reflex is intact, then the defect lies on the central side of the chiasm in the optic thalamus, the internal capsule, or even in the brain cortex. In all cases in which there is a defect for color or light sense, the space sense, that is the visual field, as tested by the ordinary means of determination, we are at liberty to expect a cortical lesion as lying at the bottom of the defect, since it is only in the cortical portion of the brain that these centers become differentiated. Now, I maintain that the doctor is mistaken, that such a thing as monocular amaurosis of cortical origin pure and simple, in accordance with the anatomical arrangement of the optic nerves and the centers implicated in amaurosis generally speaking, it being binocular as a rule, warranting that statement.

From the history of the case, as outlined in the paper, I should

be more inclined to favor some circulatory disturbance, notwithstanding the fact that under ophthalmoscopic examination the doctor was unable to find any particular disturbance in the vascular supply of the optic papillae. We often see cases of complete blindness in one or both eyes due to optic nerve lesion in which vascular disturbances are wanting. In those cases in which there is a disturbance of the central portion of the field, or in which central scotomata assert themselves, we know that the portions of the optic nerve implicated in this process are the optic nerve fibrillae, corresponding to the so-called papillomacular region of the retina, and in these cases of amaurosis, arising from whatever cause, we do not always determine the pathological state ophthalmoscopically. I believe the case under consideration, as the history shows all the way through, is one possibly of hysterical amaurosis hereditarily transmitted, or is possibly due to optic nerve enervation due to causes anterior to the optic nerve chiasm.

Dr. RICHARD DEWEY: The very complete and interesting study that Dr. Hinde has given us of amaurosis is to my mind the presentation of a case of hysterical origin. The facts which Dr. Lydston has pointed out would militate against a diagnosis of a cortical or other central lesion. It seems to me the histories of cases of eye defects which are of hysterical origin that have been recorded from time to time by Charcot and others, are more nearly parallel to the cases presented in the paper, than any others that I recollect in my reading.

Dr. H. N. MOYER: I do not agree with Dr. Lydston nor with the last speaker in their estimate of this case. On the contrary I would express myself as fully in accord with the diagnosis of Dr. Hinde. All that Dr. Lydston has said, however, is eminently true, but I fear that he misapprehends somewhat the neurological elements of this case. It is true that the optic apparatus is but a successive series of projections. The first is on the retina, perhaps, something of a secondary projection at the basal ganglia, and again we have, as far as our knowledge extends, the final projection in the cortex of the occipital lobe according to Monk and Schaeffer and according to Ferrier in the angular gyrus. But that makes no difference so far as this discussion is concerned.

If I understand Dr. Lydston correctly, he maintains that an organic lesion in the occipital lobe or optic tracts could not present the peculiar symptom grouping which is present in this case. In so far as our present experimental and pathological researches extend, he is perfectly correct, but it is to be remembered that ex-

perimental data are at best based on very coarse lesions. Excision of the cortical area produces hemianopsia on the opposite side. It is possible if we could successively remove each layer of nerve cells in this region, we might find one in which all the visual projections from one eye are recorded. Again, there may be visual projections in other portions of the brain far removed from the occipital lobe. To my mind this is a very interesting case, and one that has been most carefully studied. It certainly deals with the highest, and, if I may so term them, the psychical visual perceptions. To say that the disease is or is not hysterical, throws little light upon the subject. Hysteria is now regarded as essentially a disease of the highest psychical centers, and it is in the solution of just such problems as are presented by this case, that we must look for further advances in our knowledge of diseases of the brain.

Dr. SANGER BROWN: While the explanation of Dr. Moyer goes into the realm of pure hypothesis it certainly is a very reasonable one. We know that light perceptions are received in the occipital lobe. Where they go after they have been received there we do not know and we have no good way of ascertaining. They may be distributed in various areas of the brain extending so far and so widely that they could not be properly located or traced. I wish particularly to refute the statements of Ferrier and others that the angular gyrus is the psychical center of vision for the whole of the opposite eye. I do not think there have been any cases reported to substantiate that statement and certainly experiments on animals have utterly failed to support it. I had the honor of conducting a series of experiments on monkeys in conjunction with Prof. Schaefer in London in 1887. We extirpated the angular gyri of six or seven monkeys, some of them in the presence of Ferrier, and all the brains were shown to him. Before those monkeys were killed they were exhibited at the Physiological Society and the Neurological Society and committees were appointed to investigate the subject. We showed conclusively that we had extirpated the angular gyrus and even more yet all of those monkeys saw perfectly well. That reduced Prof. Ferrier to the statement that the defect of vision was merely temporary. He stated that he had only operated upon two monkeys and only got evidence of disturbance of vision for from a few minutes after he operated to an hour or so. He had operated with the monkeys under an anesthetic and every one who has had experience in testing monkeys knows that no conclusive ideas in regard to their reaction to the tests could be formed within an hour, it requires days for that sort of thing.

Italian physicians have made experiments on the brains of dogs, and reached the conclusion that the center for vision extends considerably in front of the occipital lobes. But that is not true in regard to the monkey. In our experiments we extirpated the occipital lobes sharply and nothing more, and produced absolute hemiopia on one side, then we excised the lobes on both sides and produced total and permanent blindness but no other effect. I did not hear the first of the paper, but presume that the blindness disappeared without leaving any permanent symptoms and so it would have to be assumed that it was functional. I do not think it is any more unreasonable to assume that the functional cell disturbance is in the cells of the retina itself, than to assume that it must be in the cortex. They might easily lose their function without undergoing any change that would be perceptible by our means of investigation. It is fair to assume that if you could look into the brain of a hysterical or paralyzed person you would not perceive any change, and I certainly think the author's case was simply an unusual one of so-called hysteria, and does not throw any light upon the question of the location of the cortical center of vision.

Dr. H. T. PATRICK: I do not think in the present state of our knowledge that we are justified in making the distinction Dr. Moyer made between a hysterical and a psychical amaurosis, for as a matter of fact up to date the cases observed of monocular amaurosis of a psychic character have occurred in hysterical individuals. I would say in regard to the remarks of Dr. Sanger Brown about the retina as the seat of this amaurosis, that of course there is no way to prove his supposition wrong in all instances, but in most of these cases it is easily shown that the retina is not the seat of the amaurosis, and in regard to this point I wish to ask whether the tests were used in this case to show that binocular vision was retained. In many cases it has been shown by deceiving the brain of the individual, if I may use such an expression, that the patient does see with the blind eye but does not know it, in other words the seat of the affection is in the cortex and not in the retina, undoubtedly in some part of the cortex higher in function than the center of vision in the occipital region. One of the tests is to put red and green letters on a black ground using a pair of glasses, one red and the other green, so that with the red glass the patient only sees one color, and with the other the same, and it has been shown by this test that the patient does see with the blind eye. The most common test is the prism, and another test is the apparatus of Flees, which resembles a stereoscope except

that the right object is seen with the left eye, and the left object with the right eye, this also shows that in the majority of cases the patient sees with the blind eye. These facts have been demonstrated again and again at the Salpêtrière, by Pitres, of Bordeaux, by Bernheim and others.

Dr. W. F. COLEMAN: There are certain cases of monocular amblyopia or amaurosis in which the field of vision of the other eye is somewhat restricted, color and form vision low, and in these cases Ferrier has supposed that the origin of the amblyopia is on the opposite side of the brain. If that is true in this case the right amblyopia would have its origin in the left occipital cortex, in which case the left eye would be somewhat involved, but I did not understand that the left eye, except to a very small extent, lost form perception, and I would ask whether in it there was any loss in color vision or field. It strikes me that Dr. Hinde's diagnosis was exactly in accord with Ferrier's view of there being a "higher center" in each occipital lobe for the whole field of each eye, and this center is in the angular gyrus.

Dr. ALFRED HINDE, in closing the discussion said: As far as Dr. Lydston's remarks are concerned, Dr. Moyer has kindly answered them for me. Dr. Dewey refers to the case as being hysterical. On account of so many hysterical symptoms being present in my case, I do not deny that it was hysterical, and it may have been an unusual form of hysterical amaurosis without associated symptoms. The only case that approaches it is one that Gowers refers to.

Dr. Sanger Brown refers to the probability of the retinal cells being the seat of the pathological process. I cannot be dictatorial upon that point. It is absolutely impossible to prove that they are not, but the iritic reflexes that were present in this case, are usually counted as of value in the localization of the pathological process, and in my case they were exceedingly acute.

The posterior third of the posterior limb of the internal capsule was not involved because hemianopsia was not present and also because hemianesthesia was absent. We have nothing left then but the termination of the optic path, in the optic radiation and in the cortical cell. I located this in the angular region because if the lesion were in the occipital lobe we should have had hemianopsia instead of amaurosis. Therefore, I am inclined to agree with the conclusions of Ferrier and Gower, and so locate the diseased area in the angular gyrus and the proximate cortex of the occipital lobe.

I am asked about the tests used for simulated blindness: The tests used were the prism diplopia test, Stilling's test of colored letters on a black ground viewed through colored glasses and an effort was made to arouse or startle the patient by throwing a strong column of light into the right eye the other being covered, but the patient remained unmoved. In the good left eye the color sense was perfect, the form-field was restricted above, below and nasally. The form perception was slightly increased before the close of the treatment.

Dr. ARCHIBALD CHURCH exhibited, see page 324,

TWO CASES OF PSEUDO-HYPERTROPHIC PARALYSIS IN BROTHERS.

Dr. J. N. WASHINGTON read a paper, see page 311, on

THE SUCCESSFUL TREATMENT OF DIPHTHERIA.

Dr. FRANK BILLINGS: At the association of American physicians held in Washington this summer one of the members read a paper upon a specific and successful treatment of typhoid fever. Dr. Osler in discussing this paper said: "I think the gentleman has been treating a lot of cases, not typhoid fever" and I think this remark will apply to what Dr. Washington has said of diphtheria. If anything at all has been taught us in recent years it is some knowledge of the cause of diphtheria, and I think the majority of authorities, both clinically and pathologically, accept the Klebs-Loeffler bacillus as the origin of diphtheria. The experiments made in the last few years by men eminently fitted for that purpose, prove that not only is this germ the cause of diphtheria, but that it sometimes produces a form which is absolutely malignant; furthermore, that this germ can become so attenuated by environment that the disease produced by it amounts to practically nothing. It is also proved that we have cases of a throat affection with a membrane-like exudate that does not contain these bacteria, that is, a pseudo diphtheria, having none of the harmful effects of the real diphtheria, and that would get well usually under any treatment.

It is also proved that many of the cases physicians have treated as diphtheria with remedies that they have called specific, were not diphtheria at all. There are perhaps few who practice as family physicians that have not at some time believed they had a specific for diphtheria, and they have been successful for a long time, but the Waterloo comes. I myself have been there. I treated diphtheria for many years with the belief that when I began early enough I could save every case, but I was taught differently.

I lost three cases in succession, treated in exactly the same manner as the successful ones. Personally I believe in the local treatment of diphtheria, based upon the fact that the germ is local in its development; it does not appear in the blood but it will develop sometimes in such numbers, and perhaps when it is most poisonous, as to cause necrosis, even gangrene of the part. It is my belief that the point of its development is the place to attack the germ and kill it. I believe we should use those antiseptics which will do the most harm to the germ with the least harm to the patient. I also believe in using remedies that will dissolve the membrane which has a natural period of development before it is pushed off or separated by the cellular proliferation and accumulated mucus under it; you may dissolve it with peptone or any other artificial digestive, and it will reappear again until the natural time for its ripening or separation. We simply do good by removing fetid material at the time. I also believe in constitutional treatment. It is thought the paralysis of diphtheria is a neuritis, and I believe a premonitory treatment during the course of diphtheria will often prevent that degree of intoxication which results in neuritis, and consequent paralysis. It is my habit to give strychnia in diphtheria. I believe it is the best heart tonic and the best general tonic we can give for that purpose. Keeping the patient on the simplest possible diet. I use alcohol only in the later stage of the disease. I rely chiefly upon local applications which will help to destroy the germ and the poisons in the throat; secondly, to strengthening the patient and perhaps prevent paralysis afterward by the use of strychnia or some other tonic, feed the patient and attend to excretion by the bowels, the skin and the kidneys.

The use of a mercurial in the early part of the disease is I think good practice, and calomel in divided doses is to be commended. The use of corrosive sublimate in doses of $\frac{1}{100}$ to $\frac{1}{20}$ grain every hour appears often to give excellent results locally and as a laxative. Peroxide of hydrogen is an excellent cleansing agent and if this is used and alternated with a 1 to 2,000 corrosive sublimate solution, as a spray or gargle, it will give unusual satisfaction. If the velum palati or posterior pharyngeal wall is involved the local treatment should be used through the nose as well as the mouth. The solution used through the nose should be much weaker than through the mouth.

Dr. C. D. BRADLEY: Up to four years ago my opinion of the pathology, etiology and treatment of diphtheria was anything but satisfactory. It seemed if the disease was mild it got well of

itself, and if it was severe the case almost invariably died. However, under the light of bacteriology I began to see my way clear toward the treatment of the disease. When the Klebs-Loeffler bacillus was brought before the medical profession and shown to be the actual agent in the formation of the diphtheritic poison; that this bacillus created a toxine which absorbed into the system causes constitutional symptoms of the most virulent character, producing changes in the kidneys, heart, blood and nervous system that are almost always fatal; and when it was shown that this bacillus never entered the general circulation, was always local in the fibrinous exudate, and was capable of being controlled and destroyed by germicides; then I realized we might yet master this disease if a suitable local agent could be found. Some advocated bichloride of mercury in solution, others salicylic acid, and others carbolic. But I knew that in the use of these drugs there had to be extreme care, that they were powerful for harm as well as for good, that the bichloride of mercury if used by those who did not understand or could not control its use might produce toxic effects which would be deleterious to the patient. I finally read a description of peroxide of hydrogen as being one of the most powerful of antiseptics, non-poisonous, and harmless in character, but after using it in four or five cases I found that while powerful to destroy the membrane and prevent the formation of toxines, it also caused local irritation of an extremely severe character, when used in the proportion advised by Marchand. I then diluted it in about the proportion of one-fourth of a one per cent solution, one of Marchand's peroxide to eleven of distilled water, and found that this was nonirritating and yet of sufficient strength to dissolve the membrane, destroy the bacillus, and prevent the formation of toxines. I have since used it in over one hundred private cases, and in two epidemics, one in an infant asylum where we had a dozen cases, and in an epidemic at the Good Shepherd's with eight cases.

Of these hundred and twenty cases only four terminated fatally. One an infant of four months from nasal diphtheria which was unsuspected and untreated until the child was in a state of collapse. A brother and sister in the same family were attacked but recovered. Another was a case of mixed diphtheritic and septic infection, in which the cervical glands were enormously swollen and the surrounding throat tissues very edematous. The boy died twenty-four hours after I first saw him. Two other children in the same house were also similarly attacked, but recovered under peroxide spray locally, and tincture ferri perchloride and whisky internally

for the sepsis. The two other fatal cases died of asphyxia after intubation by extension of membrane below the tube.

As the exception proves the rule, so these fatal cases prove that all the cases treated successfully with the peroxide were not pseudo diphtheria.

I now consider this agent one of the most simple, harmless, and efficient drugs we have for the local treatment of diphtheria if used in proper dilution. It should be applied as a gargle or spray every hour during the day and every two hours during the night, and if the case is seen during the first two or three days of its development, you will invariably find, if the peroxide is reliable and your instructions faithfully carried out, that in twenty-four hours the membrane has in great part disappeared, the toxic symptoms have subsided, the pulse, general condition, strength and vitality of the patient improved, and the case is almost certain to recover unless followed by laryngeal diphtheria and asphyxia. I understand that in Germany and France they are using inoculations into the system of antitoxins, and with very good results, but I think for the general practitioner, who cannot always get solutions of antitoxins, an agent which does not irritate when properly diluted, which prevents the formation of the bacillus and of the toxins, and dissolves the fibrinous exudate, will prove of vast importance in the successful treatment of diphtheria.

In conclusion I would say that while many of the hundred and odd cases I have mentioned were possibly pseudo diphtheria, the majority were undoubtedly genuine. In ten the larynx was sooner or later invaded, and intubation required in six. In thirty cases the pseudo membrane extended to the nasal cavities. Albuminuria was present in twenty, and partial deglutition paralysis occurred in three. In one of my private cases requiring intubation, and in the management of which I received valuable aid from Dr. Ferdinand Henrotin, the tube had to be worn for eight days before the laryngeal complication subsided. And during that time the pseudo membrane showed itself again and again on the pharynx and fauces whenever the peroxide spray was stopped.

These clinical facts prove that a large number of these cases were genuine diphtheria.

Dr. N. P. PEARSON: I have been practicing here over forty years. The first five years we never had a case of diphtheria. I remember distinctly when it commenced in 1859, and at first I had a good deal of success with tincture of chloride of iron and potash. This worked like a charm for several years, when it then appeared

entirely inert. I learned now from the school of Rademacher to treat some diseases as scarlet fever, pneumonia, diphtheria, etc., more aseptically, conceiving that the main danger in these consists in some development of sepsis. Remedies are to be applied with great discrimination according to the indication given by the countenance, complexion, the pulse, and above all the condition of the urine. I have seen these antiseptics used with wonderful success, and I have never seen a case of paralysis when the patient was treated thus aseptically from the beginning. Neither have I had any use for intubation. My death rate amounts to one case in three years, and in that case this seemed evidently due to hygienic mismanagement.

While the surgeon need not be so very particular in the selection of his antiseptics, I hold that in internal medicine we must be very careful in using them, for if we give sublimate in cases of anemia, we may do more harm than good.

Dr. W. K. JAKUES: To-day I received from the Health Department, a report on a culture that I sent there yesterday of a case I had diagnosed as malignant diphtheria. Bacteriological examination proved that it was not true diphtheria. In the hospitals in New York City, where they have the latest methods of examining the throat, and where experts make the examinations, it has been found that about fifty per cent of the cases are false diphtheria, and of these, from two to five per cent die; while in true diphtheria, under any treatment, thirty to fifty per cent die.

When a person is inoculated with diphtheria, the result will depend upon three things: first, the resistance of the invaded tissue; second, upon the power of the blood to dispose of these germs; third, upon what I call, for the lack of a better term, the reactionary power of the patient. The reason a child takes diphtheria in preference to adults, is because the mucous membrane in children furnishes a more suitable soil for invasion. We know the blood has power, to a certain extent to dispose of malignant germs, and if the toxins can be so slowly absorbed that the reactionary power can prevent the overwhelming of the vital centers, the patient gets well; if not, the patient dies.

What I have called the reactionary power needs a further explanation. As soon as the ptomaine poison of the diphtheritic bacilli is absorbed, it modifies the action of the cells in their production of nucleinic acid so that it is unfavorable to the development of the germ. If the invasion is rapid, the ptomaine is produced in such quantities that the vital centers are overcome before reaction

is established. Indications for treatment are, to retard the growth of the membrane and to neutralize its poison; to maintain nutrition and assist the phagocytic power of the blood; to watch the kidneys and bowels; the ptomaine is soluble and these eliminations of the poison should never be neglected. If, in addition to this treatment, an injection of antitoxin is used, antitoxin being the product of cells modified by the action of the diphtheritic poison, we will have a treatment in harmony with the present scientific knowledge.

A paper like the one which has been presented to-night, is worthless to us now, as new light has been shed upon this subject which makes our past experience of little value for the reason that unless a case is proven to be true diphtheria by bacteriological examinations, these numerous remedies which have been recommended will fail ignominiously when it comes to true diphtheria. The graveyards are full of patients who have been treated with medicines which proved efficacious in many cases which were undoubtedly false diphtheria.

J. R. BRANDT, M. D.: To my mind the most important question, and one which has not been discussed in this connection is that of prophylaxis. It is necessary that the infected should be isolated, and a careful examination made of all the uninfected members of the family, and, if any are found with a subnormal temperature of from one-half to one and one-half degrees, with an irregularity of the heart's action, the loss of every third or fourth impulse, and pallor of the fauces, then treatment should begin at once.

The parents should be instructed how to use the thermometer and take the temperature of the uninfected every four hours and report to the attending physician who will examine the heart. I think nearly or quite as much depends upon prophylaxis as upon treatment.

Dr. LEE: We know that in these days of antiseptic medicine if the patient can be surrounded by protective measures and given really substantial nutrition, the chances of recovery from whatever disease the patient may be attacked with are fairly good. In a few cases of diphtheria the autopsy has shown me that the intestines are infected. I agree thoroughly with the last speaker that the intestines are infected in diphtheria, that the contents of the colon from beginning to end are in a greater or less state of putrefaction, and that auto-infection will further increase the chances of the death of the patient even if it is not a factor in the production of the disease.

Peroxide of hydrogen used in full strength will inflame any mucous membrane, but in a weak dilution it can be used with impunity. It appears to me, to be as good an antiseptic remedy, and as little likely to do damage as any that has been produced up to this time. It seems to me the treatment of diphtheria may be summed up in two points, viz. : Maintaining the strength and nutrition of the patient, and the antiseptic treatment of the point of development of the disease by frequent applications of weak solutions of peroxide of hydrogen, or hydrozone.

Dr. I. B. WASHBURN : I came seventy miles to hear this discussion, and the subject is about as clear to my mind as Chicago river water is to my eyes. In the country we use peroxide of hydrogen, chlorine water, and tinctures of aconite and phyto-locca. The last cases I treated all recovered. I think I know what diphtheria is when I see it, but I would not know the Klebs-Loeffler bacillus if I should meet it on the sidewalk. But I am sure cleanliness is necessary, and that chlorine water should be given to all the members of the family as a prevention.

Dr. J. N. WASHINGTON in closing the discussion said : Speaking of the Klebs-Loeffler bacillus, Brown, of New York, says the pseudo diphtheria bacilli closely resemble the true diphtheria bacilli, both in appearance and in producing a pseudo membrane, but they are without pathogenic properties in guinea pigs. However for bedside diagnosis it is wiser to consider all cases as true diphtheria that give colonies of bacilli resembling the Klebs-Loeffler. He says further it is often impossible to distinguish between the true and the false diphtheria, except by a bacteriological examination.

The membrane was not examined bacteriologically in any of my cases, which is true; but one child died with it in the same small two-story house where I treated and saved four other children one of whom slept two nights with the child who died, the last night just forty-eight hours before her death. Whether the membrane in these cases was caused by the Klebs-Loeffler bacillus or the pseudo-diphtheria bacillus, I do not know; but I do know it was the kind of diphtheria which kills and which an experienced physician is familiar with and can diagnose without waiting for a bacteriological examination. Two other children whom I treated were infected from a neighboring house in which three fatal cases occurred; consequently there could be no doubt of the genuineness of the disease although both of my patients recovered.

Dr. E. A. Gray, who is present here this evening, told me he

had records of a series of forty cases with thirty-nine recoveries which he had treated with one of the mercurial salts. He purposes reporting them to the society later. An article in the September RECORDER by Dr. Jacques, urges the advisability of general practitioners referring cases of diphtheria to throat specialists and claims that the present rate of mortality would be materially reduced thereby. He is a throat specialist. I cannot see the need of doing so, as every experienced general practitioner possesses the skill necessary to examine and make applications to the parts of the throat involved.

I know there is also a great difference of opinion on the subject of throat applications, many very successful physicians do not use them.

As to prophylaxis no competent physician will neglect it. The case is isolated, disinfectants are used freely on the hands and in vessels, etc., and every article used for the patient is not used for any one else under any circumstances.

I will repeat that mercury in some form is regarded as the most valuable drug in the treatment of diphtheria by a large number of eminent physicians and medical authors, including Drs. Wm. Pepper, Abraham Jacobi, Geo. B. Fowler, Dillon Brown, W. Gilman Thompson, M. R. Hatfield and others. Of course it is probable that antitoxin with its transcendent therapeutic properties will soon come into general use; but until it is available other meritorious remedies will be sorely needed.

Dr. HOMER M. THOMAS read a paper, see page 304,

THE TOPICAL TREATMENT OF THE AIR PASSAGES,
and exhibited his new atomizing vaporizer.

Dr. E. FLETCHER INGALS: The subject of topical treatment of the air passages is so old that little need be said about it. The paper shows like very many similar experiments made during the last century, that vapor cannot be made to penetrate to any extent into the air passages. Under favorable conditions it occasionally penetrates to the larger bronchial tubes, in rare instances to the fine tubes, and in the rarest instances it may be drawn pretty well down to the smaller tubes. But I think the author will agree with me that the topical treatment of diseases of the air passages by any sort of remedy must be confined largely to treatment of the larynx and trachea, and perhaps occasionally the larger bronchial tubes.

There can be no question but that the deep inhalations pa-

tients are urged to take in using this treatment succeed in some instances in dilating the air cells, just as would deep inhalations of air, and I have no doubt that many patients who think they have been improved by various remedies supplied by advertising quacks, have really been benefited by the deep inhalations they are directed to take in these methods. Many people habitually breathe superficially who by an extra effort may get air a little deeper into the lungs. The suggestion that the remedy should be nonirritating is very important for any one who wishes to medicate a patient in this way. As one learns the susceptibility of a particular patient he can increase the strength of the solutions used. Some are undoubtedly of considerable benefit where the mucous membrane of the upper air passages only is inflamed.

In tuberculosis I think some benefit is to be derived from inhalation of vapors, but not by destruction of the bacilli because it is impossible to reach the points where they are most numerous. No surgeon would think of sterilizing a sponge by driving through it a vapor of any material, for ten, twenty, thirty, or any other number of minutes daily, because it cannot be done; and similarly, as any reasoning physician must have known beforehand, efforts to cure pulmonary tuberculosis by vapors or deep intrapulmonary injections have been futile.

The instrument presented to-night seems to be a good one of its kind, the only apparent objection being that the tubes are liable sooner or later to become clogged. I have never seen an instrument constructed on this principle in which the tubes did not give a great deal of annoyance after a time. These openings seem larger than in most similar instruments and the annoyance would therefore be less. There is an inexpensive instrument known as the globe nebulizer constructed on a different principle, that I have never known to clog although I have been using several of them for many months. It can be used with a high or low pressure and forms a most satisfactory vapor. It can even be used quite satisfactorily with hand pressure, which scarcely amounts to three pounds to the square inch.

There are certain diseases that topical treatment may benefit by relieving irritation of the mucous membrane, but we cannot reach deeply into the lungs, and I apprehend that after we have passed the larynx and the upper portion of the trachea we accomplish very little by vaporization of any sort, except that we cause the patient to expand the lungs more fully. I believe, however, that inhalations of iodine and a few other remedies may sometimes

slightly benefit tuberculosis, not by destroying the bacilli, with which they come directly in contact, but by dilating the air cells by the forced inspirations and expirations and by the absorption of small quantities of iodine, which is an excellent remedy for persons suffering from this disease; possibly also by their local action on the larynx and trachea in relieving the irritation and thus lessening the exhausting cough.

DR. W. E. CASSELBERRY: I wish to call attention to an important point which seems to have been overlooked in this discussion. I recognize the limits of this means of medication, as I think we all do, yet I think we should resort to it occasionally, especially in acute cases. The point I refer to is the proper position of the head and tongue when the attempt is made to give a spray for inhalation into the larynx and bronchial tubes, with the intention of having it penetrate as deeply as possible. The epiglottis covering the larynx differs much, in conformation and position; in one subject it will stand up straight, in another it will lie close to the arytenoid cartilages, leaving but a chink for respiration. The dorsum of the tongue also differs much; in one there is plenty of space across the dorsum for the introduction of the spray, in others a special position has to be taken. For years when giving a spray into the bronchial tubes, I have first given it directly from my own hand, and later have taught patients to do it, directing them to throw the head far backward and pull the tongue far forward. This will open the larynx, if it have an overhanging epiglottis; it will also pull it somewhat upward so as to allow greater space for the entrance of the spray during repeated deep inhalations following forced exhalations. I am satisfied that oil-sprays can thus be made to penetrate a considerable distance into the bronchial tract.

DR. W. K. JAKES: I wish to call attention to one use I have made of an apparatus similar to this. I have used it in intubation in diphtheria, but instead of air, use oxygen. The spray may be composed of oxygen and albolene or any other combination desired. In this way I get the benefit of the oxygen as well as carrying into the passages a vapor, with which I hoped to coat the passages, so the diphtheritic germ that is carried back and forth by the breath will not find a suitable soil for cultivation. I would suggest that Dr. Thomas try this in his future experiments.

Dr. H. M. THOMAS, in closing the discussion said: The statement made by Dr. Ingals that vapors do not penetrate to any extent below the larynx and trachea, hardly seems borne out by the

one experiment, which was so marked a success and demonstration. Dr. Gehrman has in his laboratory the air passages that were medicated in that way, showing the presence of iodine in the mouths of the smallest bronchial tubes. That experiment demonstrates this in a way which cannot be controverted, and it establishes a precedent in the use of vaporized inhalents which may make their more extended application valuable. This instrument may not be perfect; my method of conducting the experiments may have been to some degree imperfect, but that one successful experiment added, to my mind, weight in recommending this particular form of medication. The openings in this instrument are not likely to clog, because of their size; they are sufficiently large to avoid such annoyance if you use soluble medicaments. Pressure by the hand bulb can be used successfully, but it is very tiresome, a compressed air tank being preferable. The remarks of Dr. Brown in regard to the coöperation of patients are very much to the point, since the more intelligent coöperation you have from patients in the use of this method of treatment, the more beneficial it will be. The point brought out by Dr. Casselberry in regard to the position of the epiglottis, is very pertinent, and much depends upon the ability of the patient to raise the epiglottis in inspiration sufficiently to permit a free ingress of the medicated inhalent into the lower air passages.

I am obliged to the members of the society for the thorough discussion that has been given this instrument and the paper which accompanied it.

The committee appointed by the society at the request of Health Commissioner Reynolds for the purpose of inspecting plans for a new small pox hospital submitted the following report:

Dr. REYNOLDS submitted to us two sets of plans. These plans represent the pavilion method of hospital construction and are thoroughly modern in all regards.

Since our conference the Commissioner has had an additional set of plans prepared which includes all the essential features of one of the plans presented to us, though the structure represented is smaller and therefore less expensive. The building, or rather buildings, which are contemplated, are to be one story in height. Ample provision for sterilization and disinfection has been provided for. There is a separate building for the detention of suspected cases.

There is a crematory for the incineration of the dead. Separate departments are provided for the reception and discharge of patients. Provision is made for the separation of severe cases from those of lighter degree. Cheap barracks are provided for to accommodate patients when the hospital proper is crowded; these are to be heated and ventilated from the same system which supplies the hospital itself.

The committee was unanimous in the opinion that such a hospital is indis-

pensable for the proper management of epidemics of small pox and that the plans submitted were worthy of its cordial endorsement.

All the gentlemen appointed on this committee were present at the meeting, with the exception of Dr. Murphy, who was not in the city.

J. C. HOAG,
N. SENN,
Signed D. R. BROWER,
J. N. ETHERIDGE.

On motion, the above report was accepted and the committee continued.

There were 125 members and visitors in attendance.

On motion, the society adjourned.

JUNIOUS C. HOAG, Secretary.

Reviews.

A SYSTEM OF GENITOURINARY DISEASES, SYPHILOLOGY AND DERMATOLOGY. By various authors. Edited by PRINCE A. MORROW, A. M., M. D. In three volumes; illustrated. Volume III., DERMATOLOGY. Royal octavo, 920 pages. New York: D. Appleton & Co. 1894.

The third volume of this system carries out in the most satisfactory manner the promises of the earlier numbers, making in its completeness an unequalled work both for the student and practitioner and for reference on the subjects embraced. The great range of medical science to-day, even in a comparatively limited specialty, makes the preparation of such a work by numerous authors almost essential, and here the personality of each writer is thrown into his department and bears fruit in his work. In a treatise on skin diseases the illustrations are a matter of great importance and we cannot speak too highly of the way in which this has been accomplished in the volume before us. The half tone reproductions of photographs are particularly good, and the colored plates, which are sufficiently numerous, are better than the average. While it is difficult to make distinctions in regard to the articles, the one on leprosy by the editor of the book whose work in this field is well known, must command the highest respect. The chapter on tuberculosis of the skin is fully up to the latest ideas in regard to the infectiousness of the tubercle process. In its treatment tuberculin is relegated to a position of uselessness, other

methods giving better results in the hands of the writer of the article. Hypertrophies, by Dr. J. Nevins Hyde, is written in the concise, clear and experienced style of the author. Some forms of inflammatory skin diseases have been most admirably presented by Dr. Joseph Zeisler, who adheres rather rigidly to the teachings of the Vienna school, and takes Hebra as his guiding star. The chapter on so-called neuroses is practically a chapter on the nervous symptoms of skin diseases, and we do not think that this field is covered as carefully as some recent writings would lead us to require, although what is positively known or essentially important is conservatively set forth. As a whole the work reflects the greatest credit on all concerned, and is put forth in the well-known good form of the publishers.

A HANDBOOK OF MEDICAL MICROSCOPY for Students and General practitioners, including chapters on Bacteriology, Neoplasms, and urinary examinations. By JAMES E. REEVES, M. D. With a glossary and numerous illustrations, partly in colors. Cloth: 237 pages \$2.50. Philadelphia: P. Blakiston & Co. 1894.

Dr. Reeves has probably had a longer and more intimate acquaintance with the microscope, not as an office ornament, but as a constant working companion, than any physician in America. He has not rushed at once into print, but after working for forty years with the microscope, he has prepared a practical manual which is excellent beyond all praise. The author's enthusiasm in his work he has communicated to the printed page and so to the reader. As a result of his vast experience he has greatly simplified method and technique and brought them within the reach of the ordinary observer. Sixteen pages are devoted to preliminaries, fifty-four pages to general microscopical technology, bacteriology, examination of neoplasms, urinalysis. Examination of blood, sputum and feces are then completely but briefly considered; sections are also devoted to mucous cylinders and crystalline bodies, microorganisms of the skin, and in food and drink, and a brief mention made of Vaughan's method of bacteriologic examination of drinking water. The author's style is always clear and succinct, and the work is a great credit to him and will prove of immense benefit to the profession at large.

A TREATISE ON DIPHTHERIA. By DR. H. BOURGES. Translated by E. P. Hurd, M. D. Physicians' Leisure Library. Paper, 173 pages, 25 cents. Detroit: Geo. S. Davis. 1894.

Dr. Bourges' scholarly treatise is prefaced by a twenty-two page resumé of the subject by the translator, who emphasizes particularly the work done by American practitioners and bacteriologists. The author discusses fully the etiology and pathology of the disease which he characterizes as at first strictly local. Treatment receives somewhat scant attention at his hand, and especially the methods commonly employed in this country. A very interesting chapter in the book is that on "False Diphtherias." The treatise is an excellent summary of our knowledge of the subject up to the antitoxin period.

LANDMARKS IN GYNECOLOGY. By BYRON ROBINSON, B. S., M. D., Professor of Gynecology in Chicago Post Graduate School, etc., Physicians' Leisure Library. 2 vols., paper, 220 pages, 50 cents. Detroit: Geo. S. Davis. 1894.

Dr. Robinson includes in his "landmarks," anatomy, menstruation, labor, abortion, gonorrhea, and tumors. This classification is, to say the least, unique. These various landmarks are considered in the author's well known forcible style. Great originality is displayed and much that is new is advanced. The table of contents is meager and the index wanting. The suggestions to beginners in laparotomy are pertinent, but hardly practicable as all laparotomists must at one time be beginners.

THE PHARMACOPEIA OF THE HOSPITAL FOR DISEASES OF THE THROAT, Golden Square. Edited by F. G. HARVEY, F. R. C. S., Ed. Surgeon to the Hospital. Fifth edition. Cloth, 112 pages, \$1.25. Philadelphia: P. Blakiston, Son & Co. 1894.

This little formulary has undoubtedly a value, but it is difficult to understand why it should be in use in this country, for our ways are not the ways of Golden Square, nor our pharmacopeia like that of England. The book is in the main a compend of the formulæ of the late Sir Morell Mackenzie.

ESSENTIALS OF THE DISEASES OF THE EAR. By E. B. GLEASON, S. B., M. D., Clinical Professor of Otology, Medico-Chirurgical College, Philadelphia, etc. Saunders Question Compound No. 24. Cloth; 147 pages, \$1.00. Philadelphia: W. B. Saunders. 1894.

This compend has been written for physicians taking the post-graduate work in otology, and for students to supplement their work in this study, and as an aid in their dispensary service. It is accurate and brief and covers the ground well.

News Items.

Dr. R. C. WILSON has removed to 4300 Greenwood Avenue.

Dr. H. B. CARRIEL has removed from Chicago to Kansas City.

PROFESSOR FRAENKEL, of Marburg, has been appointed to the chair of Hygiene at Halle.

PRIORITY IN THE LIGATION OF THE UTERINE ARTERIES is at last claimed by a St. Louis man.

MOSCOW will be the meeting place of the Twelfth International Medical Congress in August, 1896.

THREE CHLOROFORM DEATHS occurred in London hospital between August 10 and September 6.

Dr. N. P. PEARSON has moved his residence to the Westminster Hotel, 462 North Clark Street.

Dr. JAMES MOORES BALL has assumed charge of the editorial department of the *Medical Fortnightly*.

SIR JOSEPH LISTER has given up his hospital connections preparatory to his retirement from practice.

Dr. FRANK A. STAHL announces that he will have an office in suite 1003, Columbus Memorial building.

Dr. RUDOLPH MATAS, of New Orleans, has been elected President of the Louisiana State Medical Society.

THE CULT OF THE ROTTEN CALF is the gentle term applied to the prevention of smallpox by an English antivaccinationist.

Dr. K. A. G. MACKENZIE, of Portland, has been appointed chief surgeon of the Oregon Railway and Navigation Company.

Dr. T. J. WATKINS has been appointed attending gynecologist to St. Lukes Hospital in place of Dr. Henry T. Byford, resigned.

Dr. DOERING returned from Europe November 1, crossing on the steamship *Lucania*, which on that occasion broke all former records.

THE INFLUENZA has been very prevalent in Buenos Ayres during the four months just past, which constitute the winter season in that latitude.

DR. BEAVEN NEAVE RAKE, the eminent student of and authority upon leprosy, died at Port of Spain, Trinidad, on August 24, at the age of thirty-six.

DR. A. H. BUCKMASTER, of New York, has been appointed to the chair in the University of Virginia, made vacant by the death of Dr. W. C. Dabney.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION will hold its seventh annual meeting in Charleston, South Carolina, on November 13, 14 and 15.

THERE ARE at present ninety-eight members of the medical profession in the French legislature, sixty-one of whom are deputies, and thirty-seven senators.

PROF. L. MAUTHNER has been made the successor of Stellwag as professor of ophthalmology and director of the ophthalmic clinic in the University of Vienna.

PARIS HONORS PHYSICIANS by giving streets their names. In the directory of Paris are now to be found Rue Charcot, Rue Ulysse Trélat and Rue Trousseau.

DR. KARL SANDBERG has removed his residence from 1806 Deming Court, to 140 Evergreen Avenue. Telephone West 569. Office as formerly, 70 State Street.

DR. R. MATAS, of New Orleans, has been called to the chair of surgery in the medical department of Tulane University, Louisiana, vice Dr. A. B. Niles, deceased.

ANTHRAX has been reported in London during the last twenty years in 118 cases; 102 of the patients were engaged in occupations, bringing them in contact with hides.

THE ILLINOIS STATE BOARD OF HEALTH will not recognize dental pharmacy or veterinary colleges as entitled to recognition for any part of a medical college course.

MR. VICTOR HORSLEY had conferred upon him the honorary degree of Doctor of Medicine by the University of Halle on the occasion of the bicentenary of its foundation.

DR. J. B. MURPHY desires to announce to the medical profession that after November 1, 1894, his practice will be limited to surgery, operative gynecology and consultations.

PHYSICIANS CANNOT RENT houses from the Duke of Westminster in London, because by their presence in the fashionable quarters, aristocratic tenants might be frightened away.

THE LATE DR. ALBERT B. NILES, of New Orleans, bequeathed \$10,000 each to the Medical Department at Tulane University, to the Charity Hospital and to the Hotel Dieu at New Orleans.

DR. D. A. K. STEELE has removed his office to the Columbus Memorial building, 103 State Street, and has limited his practice to surgery and consultations. Office hours from ten to twelve.

DR. JESSIE M. WESTON, who has just been elected to the medical staff of the Connecticut State Hospital for the Insane at Middletown, has the only medical position in the State held by a woman.

DR. DENSLOW LEWIS gives his eighth annual course of lectures on obstetrics and gynecology at Cook County Hospital Tuesdays during November, December and January. Practitioners are invited to attend.

DR. ROUX has received from President Casmir-Perier the congratulations of the government and the Cross of Commander of the Legion of Honor, in recognition of his work upon the serum treatment of diphtheria.

SHARP & DOHME have just issued a new catalogue and price list which will be of interest to the medical reader, and of use in the office, enabling one to satisfy himself as to the prices charged his patients by the druggists.

THE IDAHO STATE MEDICAL SOCIETY at its annual meeting elected the following officers: President, Dr. J. H. Moore, Pocatello; Vice President, Dr. E. L. Parrault, Boise; Secretary and Collaborator, Dr. C. L. Sweet, Boise.

THE OFFICE OF CORONER in New York as a constitutional office, has been abolished. This is supposed to be a stepping stone to the provision by the legislature that only physicians shall exercise the duties now performed by coroners.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION holds its annual meeting at Hot Springs, Ark., November 20 to 23d. A varied and important programme has been prepared for that occasion. A special rate of one fare has been secured over all the railroads. A special train will leave St. Louis, over the Iron Mountain road, Sunday night, November 18.

DR. HENRY HOFFMANN DONNER died in Frankfort-on-the-Main, on September 20, aged eighty-three. Although a skillful physician,

he was better known to the world at large as a poet and humorous writer. His best known book was "Struwelpeter," which ran through no less than one hundred and fifty editions in Germany, and was translated into every European language.

LEPROSY IN NORWAY is decreasing. In 1885, 1,375 lepers were known to be in Norway, in 1890, only about 500 were on record. Of 993 lepers under treatment 13 recovered, and in 154 cases the condition was so ameliorated that the patients were discharged. In the last thirty-five years 7,635 lepers were observed of whom 186 or 2.22 per cent recovered.

MEDICAL LIBRARY FOR SALE. Hard times and much personal sickness have compelled me to offer my library of one thousand volumes for sale at my residence, 296 West Monroe Street, Chicago. Among the books may be found a full set of Ziemmsen's Cyclopædia of the Practice of Medicine, twenty-two volumes, together with all practical works and many rare ones. T. D. FITCH.

THE CHICAGO GYNECOLOGICAL SOCIETY at its annual meeting, October 19, elected Dr. Franklin H. Martin, President; Dr. Addison H. Foster, Vice President and Treasurer, and reëlected Dr. Henry Parker Newman, Secretary and Dr. T. J. Watkins, editor. The retiring President, Dr. Ferdinand Henrotin, addressed the society upon "Radicalism and Conservatism in Gynecological Societies."

Dr. ECCLES, in a recent number of the *New York Medical Journal*, declares after making a careful examination of the malt manufactories of New York and vicinity, that he could find no objectionable features in the ingredients entering into the preparation or the finished article. The freedom with which these preparations are ordered for patients will probably not be curtailed by this assurance.

THE AMERICAN PUBLIC HEALTH ASSOCIATION at its annual meeting held in Montreal, elected Dr. William Bailey, of Louisville, Ky., President; Dr. G. P. Conn, of Concord, N. H., First Vice President; Dr. G. Mendizabel, of Orizaba, Mex., Second Vice President; Dr. Irving A. Watson, of Concord, N. H., Secretary; and Dr. Henry D. Holton, of Brattleboro, Vt., Treasurer. The 1895 meeting will be held in Denver.

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS at its annual meeting held in Toronto, elected the following officers for the ensuing year: President, Dr. J. H. Carstens, of

Detroit, Mich.; First Vice President, Dr. W. E. B. Davis, of Birmingham, Ala.; Second Vice President, Dr. Henry Howitt, of Guelph, Ont.; Secretary, Dr. Wm. Warren Potter, of Buffalo, New York; and Treasurer, Dr. X. O. Werder, of Pittsburgh, Pa.

THE LETTERS of the late Professor Billroth, of Vienna, are about to be published, with the sanction of his widow, under the editorship of Dr. George Fischer, surgeon to the Hanover City Hospital. Dr. Fischer asks any English correspondents who may have preserved letters of Billroth's to send them to him, at 22 Warmbuchenstrasse, Hanover. Any letters forwarded in response to this request will be copied and returned without delay.

THE COLUMBIAN AMBULANCE ASSOCIATION are doing good work in this city under the direction of Dr. H. W. Gentles. Ambulance men, patrolmen, policemen and firemen are to be instructed in first aid to the injured. The association has already made arrangements with the chief of police to start a class at the Harrison Street police station, and money for this very laudable purpose is expected to be raised, also for the purchase of a model ambulance equipment. Those desiring to assist may secure a membership for five dollars, and check in payment therefor may be sent to D. J. Wile, Unity building.

Dr. WILLIAM GOODELL, of Philadelphia, died October 27, in the sixty-fifth year of his age. He was one of the gynecological pioneers of this country and has long been considered one of the most conservative in that branch of special work. He was appointed lecturer on obstetrics and diseases of women in 1870, in the University of Pennsylvania, and clinical professor on the diseases of women and children in 1874, and continued in this position until about a year ago when upon his resignation he was made honorary professor. His contributions to literature are marked by a painstaking care and discriminating judgment.

ST. PETER'S HOSPITAL, WOO CHANG, CHINA, has been built, equipped and presented to the Protestant Episcopal Mission of that place, by President Seth Low, of Columbia College, and his brother, A. A. Low, of New York. The hospital accommodates twenty-four in-patients and is supplied with the most modern furnishings, instruments and appliances. Notwithstanding the prejudices of the Chinese, the dispensary connected with the mission did considerable work in 1893. 11,649 patients were treated,

195 were admitted as in-patients; 330 minor and 119 major operations were performed, and 168 patients were attended at their homes.

DR. PILCHER, Superintendent of the Institution for Imbeciles and Weak-minded children, at Winfield, Kan., has been bitterly denounced by newspapers in Winfield and Topeka for castrating several boys, inmates, who were confirmed masturbators. His predecessor, Dr. Wile, had treated these boys five years without benefit, and Dr. Pilcher, taking a rational view of the subject, performed the operation for the same reason he would perform any other surgical operation, for its curative effect. There is a strong probability that he will be indicted for mayhem, to the everlasting disgrace of the civilization of the nineteenth century. — *Texas Medical Journal*.

A STATUE OF DR. J. MARION SIMS was unveiled in Brooklyn on October 21, amid impressive ceremonies. The statue is the first ever erected to a physician in this country. The pedestal bears this inscription: "J. Marion Sims, M. D., LL. D., born in South Carolina, 1813; died in New York city, 1883. Surgeon and Philanthropist, founder of the Woman's Hospital, State of New York. His brilliant achievements carried the fame of American surgery throughout the civilized world. In recognition of his services in the cause of science and mankind he received the highest honors in the gift of his countrymen and decorations from the governments of France, Portugal, Spain, Belgium, and Italy."

MONUMENT TO CHARCOT. The pupils and former associates of Charcot in Paris and throughout France are engaged in raising a fund for the erection of a bronze statue of him in the Salpêtrière. This movement is now receiving cordial and material support in Germany, in England, and in Italy. It has therefore seemed desirable to the New York Neurological Society that the profession in America join in this testimonial. For this purpose the society has appointed a committee consisting of Drs. Edward D. Fisher, E. C. Seguin, M. Allen Starr, Charles L. Dana, and C. A. Herter, to bring the matter to the attention of the profession and to receive contributions, which will be duly acknowledged and forwarded to the central committee in Paris.

THE SCARCITY OF PATIENTS. There may be some comfort to the many physicians who have felt the long continued "dullness" in their practice, in learning that it is not a local stagnation,

but that the same conditions are being felt in other parts of the world. English medical journals speak of the "marvelous health of the country;" and the large number of physicians who have attended the many congresses without being missed, so few are the patients. An Edinburgh correspondent of the *Medical Press* writes recently, "that in that city it was a vacant vacation with a vengeance; there was absolutely nothing stirring, and he knew of one practitioner acting as locum tenens for seven others on their holiday, who, notwithstanding this weight of responsibility, yet found ample time to play golf every day."

THE DIPHTHERIA ANTITOXIN TREATMENT now engaging professional and public attention, is a legitimate result of our knowledge of the bacterial nature of the infection. It rests on the two major facts that the serious symptoms of the disease aside from suffocation are due to ptomaine poisoning and that the blood serum of animals recovering from the disease is detrimental to the life process of the bacterium and also counteracts the activity of its toxin. In practice horses are now used, as the supply of serum is thereby at a maximum, but goats, guinea pigs, rabbits and other animals are available. The process of securing the immunized serum consists essentially in the inoculation of the horse with diphtheritic poison and subsequently obtaining the blood serum by phlebotomy.

The injection of the serum practically confers immunity in an uninfected individual and is a curative measure in patients already the subjects of the malady, preventing the systemic poisoning and retarding or completely checking the local membranous growth. The results of this treatment in 1,117 unselected cases taken from various European sources and compiled by the *British Medical Journal* is a mortality of twenty-eight per cent as compared with the usual average of about fifty per cent in bacteriologically verified cases under other lines of treatment and observed under similar circumstances. In Paris Roux's mortality fell to 24.33 per cent under the serum method, while at the hospital Trousseau at the same time and under precisely similar surroundings and conditions, excepting treatment, the mortality remained at 63.20 per cent. Of thirty-six reported English cases there was a mortality of only 5.5 per cent.

Paris has by public donations subscribed 50,000 francs for the purchase of the serum to be used in the various hospitals. Hungary has proposed to vote 50,000 florins for the same purpose,

while Vienna, Berlin, Marseilles and other large cities have followed their example. In London the Institute of Preventive Medicine is furnishing the serum and it is believed that the cost of treatment will not exceed a shilling per case, as one, or at most two injections only are required. Of horse serum about six drachms are employed for a child and injected subcutaneously in the thigh. Of the intensified antitoxine of Behring or Aronson only a few minims at a dose are employed. It causes no systemic reaction and its effects are estimated by its control of symptoms and its action on the diphtheritic membrane. Steps are on foot to produce the serum in Chicago, where at present it is not obtainable.

PAMPHLETS RECEIVED.

New Instruments. By Seth Scott Bishop, M. D. *Journ. Am. Med. Ass'n.*, Sept. 29, 1894.

Do Weak Lenses Benefit Patients? By Clark W. Hawley, M. D. *The Refractionist*, 1894.

Eleventh Annual Report of Oxford Retreat, Oxford, Ohio, for the year ending, December 31, 1893.

Are there Degrees of Insanity? By R. M. Phelps, M. D. *Northwestern Lancet*, August 1, 1894.

The Provisional Treatment of Insanity. By Sanger Brown, M.D. *N. Y. Med. Record*, Sept. 8, 1894.

An Interview with Porro. By Denslow Lewis, M. D. *Am. Journ. of Obstet.*, Vol. XX., No. 3, 1894.

Sleep, Sleeplessness, and Hypnotics. By S. V. Clevenger, M. D. *Journ. Am. Med. Assoc.* March 10, 1894.

Bladder Gymnastics and Auto-Irrigation. By Byron H. Daggett, M. D., *Buf. Med. and Surg. Journ.*, July, 1894.

A Résumé of Twelve Hundred Examinations for Life Insurance. By William H. Dukeman, M. D. *Med. News.*, Sep. 8, 1894.

Are Low Degree Lenses "Merely of Mythical Value?" By Horace M. Starkey, M. D., *Journ. Am. Med. Assoc.*, September 8, 1894.

The Operative Treatment of Old Unreduced and Irreducible Dislocations of the Hip. By M. L. Harris, M. D. *Am. of Surg.*, Aug., 1894.

Diseases of the Alimentary Canal, Treatment Internal and External Hydrotherapy Medication, by Dr. James Osbourn De Courcy. *Journ. Am. Med. Assoc.*, July 28, 1894.

Persistent Albuminuria and Glycosuria with Frequent Hyaline Casts in Functional Nervous Diseases. By Landon Carter Gray, M. D. *Am. Journ. of the Med. Sci.*, October, 1894.

Chromicized Catgut as a Means of Direct Fixation in the Treatment of Fractures and Osteotomies, with a Report of a Case. By Frank W. Jay, M. D. *Journ. Am. Med. Assoc.*, May 19, 1894.

Cauterization of the Nares, and Accidents that may Follow. Pro. Ill. State Med. Soc., 1894. Hypertrophy of the Pharyngeal or Luschka's Tonsil. *Journ. Am. Med. Ass'n*, Sept. 29, 1894. By E. Fletcher Ingals, A. M., M. D.

Tubercular Abscesses and their Treatment; Bloodless Amputation at the Hip Joint at one Sitting, and with one Needle, R'y Age; A Retaining Splint for Excisions of the Hip Joint; Old and Neglected Deformities Following Infantile Spinal Paralysis. *Col. Med. Journ.*, June, 1894. The use of Traction in the Treatment of Joint Diseases, *Pittsburgh Med. Rev.*, September, 1894. By Steward Leroy McCurdy, A. M., M. D.

THE CHICAGO MEDICAL RECORDER

DECEMBER, 1894.

Original Articles.

ANIMAL EXTRACTS.

By N. S. DAVIS, JR., A. M., M. D.

PROFESSOR PRINCIPLES AND PRACTICE OF MEDICINE AND CLINICAL MEDICINE, NORTHWESTERN
UNIVERSITY MEDICAL SCHOOL, CHICAGO, ETC.

It is impossible to define accurately the expression tissue extract. It is made to include not only genuine extracts of tissues, that is, the chemical substances that can be dissolved from animal tissues by water, alcohol or glycerine, but sometimes also the raw tissue itself, or the juice that can be expressed from it, or the solid tissue dried and finely powdered.

Tissues, organs, and even whole animals, were used for the cure of diseases in very ancient times, but for several generations only a gland of the musk ox, and of the beaver, and digestive ferments chiefly obtained from swine, have been retained in our pharmacopeias. The employment of animal extracts was revived in 1889, when Brown-Sequard recounted to the Societe de Biologie his own experience with some of them. When urged upon the profession by Brown-Sequard, they were received by many of the older physicians with incredulity, and by the younger as a novelty. They were, however, at once tested extensively, but the trials were for the most part so crudely made, and the literature which grew out of them has been so crudely considered by its authors, that they have little value. There are, fortunately, in the mass of literature which has now become quite considerable, a few articles very suggestive and full of original thoughts, the result of careful research.

At first they were tried extensively and often thoughtlessly. They were accordingly discarded promptly by those who used them without judgment; but they have not fallen into complete disuse for although they are employed less frequently, they are used with more judgment and a greater number are employed to-day than were used three years ago.

The employment of tissue extracts has been especially useful in stimulating a more thorough physiological study of the inter-relationship of tissues. Unfortunately our knowledge of the chemical reactions which take place in or about living cells, is very vague and imperfect. Physiologists cannot depict with a formula, or a series of them, all that happens when nourishment absorbed from the alimentary canal is carried by the blood to a muscle or gland, and selected by their cells for their own use; or what happens when those cells worn or exhausted by work turn back into the blood waste matter. Some of the chemical changes are understood, and their physiological significance comprehended. Within a very few years the group of chemical substances known as leucomaines has been discovered. They bear to animal tissues the same relationship which alkaloids, such as morphia and strychnia, bear to vegetable tissues. In addition to leucomaines there are other chemicals still less perfectly understood that are now called extractives, and many of them possess very considerable physiological power. The leucomaines, when they can be introduced into animals in considerable quantities or their escape from the animal body by natural channels prevented, produce fatal poisoning. This is true of some of the extractives as well. It has been found, moreover, that certain of these substances have selective affinities for certain other tissues, just as their analogues, the alkaloids of plants possess selective affinities.

When an extract is made of an animal tissue, it will contain the leucomaines and extractives of that tissue as well as other chemical substances, some of which may be inert, and some of which may have physiological powers if introduced into the circulation of a living animal. These chemical substances may be the active principles of some tissue extracts. In order to produce physiological changes in living animals by such extracts, they must, for the most part, be introduced directly into the blood stream, or indirectly by hyperdermatic injection. It has been found that very few of them can be introduced by the stomach without their powers being destroyed by digestion, or their entrance into the general circulation prevented by the liver. The

tissue extract that is to-day therapeutically the most important is a notable exception to this rule. I refer to thyroid extract.

It has been suggested that tissue extracts accomplish good by affording injured tissues nourishment that is peculiarly suited to themselves, and in a very assimilable form. Therefore when the nervous tissues are injured, it is suggested that extract of nerve tissue be introduced into the circulation, or if the heart muscle is weak and imperfectly nourished, that an extract of healthy heart muscle be thus introduced into the blood. We have no experimental proof that these substances act simply as nutriment, and as a rule they are employed in quantities so small that they cannot be regarded as of much nutrient value.

Another theoretical explanation of their mode of action is that, in some tissue extracts there is a substance or group of substances that stimulate the vitality of certain living tissues. This is the only explanation that can at present be given of the action of a few animal extracts. The most important ones, however, seem to produce their good effects in an entirely different manner. It seems probable that the views of Brown-Sequard will be confirmed that many tissues secrete a substance which is necessary to the life of other tissues. These substances, the exact chemical nature of which we do not know, have been called internal secretions, and are probably the active principles of the tissues from which they are derived when they are used therapeutically.

A secretion may be defined as a substance elaborated by a cell or group of cells which is useful for the maintenance or preservation of life in the body as a whole. The concept of a secretion is further modified in the minds of most students of physiology to be a substance that is, as soon as formed, eliminated from the body, and that performs its work either in some of the body cavities or upon the skin. If, however, it can be demonstrated that gland cells, or other cells, manufacture substances which, finding their way into the blood instead of out of the body, are essential to the life or functional activity of other tissues, they may appropriately be called internal secretions. In 1869 Brown-Sequard announced his belief in such internal secretions. We have all been taught that there is a mechanical dependence of one tissue and organ upon the other, and that their correlated action for the good of the body as a whole was dependent upon the nervous system and upon the blood, which unite them all. But the notion that one tissue produces chemical substances that are essential to the life or healthful action of another tissue has not been at all

generally conceded. If such internal secretions do exist, it is a natural corollary that the destruction of an organ or a particular kind of tissue will cause ill health in one or more other tissues. It is a natural corollary to this, that if ill health is thus produced the artificial introduction into the blood of the secretion which is lacking will restore health. This is the basis of the therapeutic use of the tissue extract which is to-day proved to be of the greatest utility. The best evidence that we possess of the existence of such secretions is derived from a study of the effects of the removal of certain organs like the thyroid, pancreas and adrenals, and the effect of engrafting these same healthy organs into animals from whom they have been removed, or of introducing their extracts into the blood. It has been found that the removal of these organs produces symptoms of characteristic diseases that finally terminate in death. The symptoms are plainly those of poisoning, and cannot be explained as the result of shock from operation or injury to the nervous system produced in the course of an operation. The symptoms are so precisely like those caused by chemical poisons that we can only account for them by supposing that chemical poisons exist in the blood and produce them; poisons that are neutralized, destroyed or eliminated during health by the organ, the removal of which permits them to cause fatal results. It has been found that if a portion of either of these glands is left in the body the symptoms of poisoning will not develop; in other words, they only show themselves when all of one of these glands is removed. Next it was discovered that if the thyroid or the pancreas was removed from its natural position, and the whole or a considerable part engrafted successfully upon the peritoneum, the symptoms of poisoning did not develop. These facts show that something elaborated by the living glands is capable of preventing the peculiar forms of poisoning which the removal of the glands otherwise provoke. But we might conclude that life in the cells of these glands are essential to the production of immunity to the diseases artificially produced by their ablation. A little later, however, it was discovered that if the juice of the dead gland was expressed or extracted by water, and was introduced subcutaneously into an animal in whom the symptoms of poisoning had already developed, as the result of the removal of one of these glands, the symptoms disappeared, and by repeated injections could be made to permanently remain away. It is evident, when the extract of a dead gland is thus used, that it is a chemical substance within the gland that confers immunity to these artificially

produced diseases rather than a living cell, and for want of more definite knowledge these substances are called internal secretions.

The most striking illustration of the physiological and therapeutic effect of an internal secretion can be found in the thyroid gland. The removal of this gland produces in many animals an artificial disease, and its removal or spontaneous atrophy in man produces myxoedema. When lower animals are deprived of this gland, the effects vary somewhat with the species. Herbivorous animals are very little affected by the operation. Carnivorous animals and monkeys are severely affected, and usually fatally. If the thyroid gland is wholly removed in a monkey, the same symptoms are produced that we recognized in man as those of myxoedema.

Horsely has been able to locate with some degree of definiteness the tissues that are most affected and the manner in which they are affected by an experimental study of the disease in monkeys. A trembling motion of particularly the lower limbs, which is noticed chiefly when voluntary movements are attempted is due to an over excitation of the spine, for division of the motor nerves prevents these motions, showing that they are not due to peripheral irritation, and section of the spine does not destroy at once the movements, showing that they originate rather from a peculiar spinal irritability. It was found that irritation of the motor zones of the brain produced characteristic muscular movements slowly as if the brain were benumbed by an anesthetic or partly paralyzed.

The blood was very imperfectly oxygenated, the amount of reduced hemoglobin being about the same in the arteries and veins. In many instances a degree of asphyxia was noticeable, which was due to this imperfect oxygenation of the blood. As the blood was unable to carry oxygen in normal quantities to the tissues, metabolic changes in them were lessened. This produced emaciation and in the subcutaneous tissues an increase of fibrous tissue. In man and monkeys the fibrous tissue tended to undergo mucoid degeneration, and therefore the skin grew thick. The diminished bodily temperature which is so characteristic of the absence of the thyroid gland, is the result of the lessened and perverted metabolism. In cats and dogs a more acute disease is produced by the removal of the thyroid. In them muscular twitching of the lower extremities is marked. There is an increase of mechanical and electrical excitability of the muscles; disinclination for food, and if it is forced upon them convulsions

are usually provoked. They become stupid, or lack their natural vivacity. Many times their respiration is hurried and labored. Sometimes salivation occurs. Death results from convulsions. Usually the disease proves fatal in cats in from four to seven days; in dogs in from ten to thirteen. If from these animals who are so susceptible to a fatal disease from thyroidectomy, a part of the gland only is removed no illness will follow or only a mild and transitory one. If some days after a part is removed the remainder is taken away many will survive and in all life will be more prolonged than if the whole gland is removed at once. The survival of some under these circumstances is explained by supposing that there are other tissues in the body which are capable of doing the work of the thyroid, provided life can be prolonged sufficiently for them to increase in size, or at least in functional activity.

As myxoedema was observed by surgeons to often result from the removal of the thyroid gland, it was suggested that an attempt be made to engraft it elsewhere, and thus endeavor to save life. This attempt was first made upon lower animals, and proved successful. It was subsequently made upon women suffering from spontaneous myxoedema, and with a wonderful relief of the symptoms of the disease. Almost simultaneously it was found in lower animals that if the thyroid juice was introduced subcutaneously the same good results were obtained. The treatment of myxoedema by hyperdermatic injections of thyroid extract was immediately begun, and the results of such treatment has been most encouraging. Apparently perfect cures have been effected by it. A little later the raw gland was fed to patients, and was found to produce just as good results as when its juice was injected subcutaneously, but much larger quantities had to be administered. Recently it has been used chiefly in the form of a dry powder, representing the entire gland, minus the water which it naturally contains, and in this form it proves effective and very easy of administration. In cases of myxoedema, improvement is noticed from the administration of thyroid extracts in a very few days, and by their persevering use the improvement goes steadily on to apparent perfect recovery. In severe cases several months of treatment are required. In mild cases recovery can be effected in a few weeks. The thickening of the skin disappears, the heat of the body returns, speech and intelligence are restored, and memory seems as good as ever. Whether this treatment affords a permanent cure or not, it is too soon to

say, for only two years ago myxoedema was classed among the incurable diseases, and is now apparently curable by this specific. But too little time has elapsed to demonstrate the permanency of the cures that have been effected. In cretinism, that other loathsome disease of the thyroid, the same tissue extract produces an amelioration which seems steady and progressive so long as it is used, but when discontinued a tendency to relapse has already been observed.

Bramwell, when treating cases of myxoedema, noticed that the skin was stimulated to renewed functional activity and that it often peeled extensively. He therefore suggested the employment of thyroid extract in psoriasis, eczema and some other skin affections as a stimulant of healthier life in it. He has reported several cases of psoriasis treated with thyroid extract only, in which recovery was effected in the course of a few weeks. The evidence of other observers is conflicting. Some obtain most excellent results and others notice no good effects whatever. My own trials of thyroid extract in this disease have been unsatisfactory. In several cases I saw no improvement. In three I observed apparently prompt improvement, but one of these has relapsed while still under treatment. It must be borne in mind, however, that thyroid extracts probably depreciate in value if they are long kept, and the conflicting results may be due in part to the employment of the preparations now in the market, some of which may be inert or readily become so.

Of the chemical nature of the active principle or principles of thyroid extracts, we have no knowledge.

The reasoning which led to a trial of pancreatic extract as a therapeutic agent was precisely similar to that which led to the employment of thyroid extract in myxoedema. It was first shown that the removal of the pancreas produced a wasting of the body and glycosuria, the most characteristic symptoms of diabetes. It was also observed that if a portion of the gland was left intact, or if the whole gland was removed and then engrafted upon the peritoneum, these symptoms did not develop. It was evident therefore that a disease was produced when this gland was wanting that might be called an auto-intoxication. The poison which produced this was evidently normally destroyed or neutralized by some internal secretion of the pancreas. It was natural therefore to hope for good results from the administration of the pancreas or its juices in diabetes; and especially as it is true that the pancreas oftener perhaps than any other one organ, is involved in destructive

changes in this disease. The pancreas has been administered by the mouth, raw, and in the form of dry powder, and water and glycerine extracts made from it have been administered internally and subcutaneously ; but its use has not afforded gratifying results. My own experiments with it I reported a year ago. The results obtained were entirely negative, as have been those of almost all other observers. A few have reported some temporary amelioration of symptoms, but no positive or permanent change in the condition of their patients.

A third gland, which has been employed in these same ways, and whose employment was reasoned to in the same manner, is the adrenal. In 1856, Brown-Sequard showed that the removal of the suprarenals from certain animals caused fatal nervous lesions. These consisted chiefly in a lowering of bodily temperature, a progressive paralysis and often immediately before death, convulsions. He also showed that if one of these glands was removed at a time, with an interval of one or two months between the operation, life was very much prolonged, though it was not saved. Recently Brown-Sequard and Arsonval showed that after their removal, when death seemed imminent, the subcutaneous injection of extracts of the healthy glands restored the animals for a time at least to almost a normal state. Other observers have noticed that rabbits, from whom the suprarenal capsules were removed, lived, but that their blood had a curarising effect on frogs. This toxic condition of the blood persists for months.

What the exact nature of the poison is that produces fatal results, when the adrenals are removed from guinea pigs and frogs, we do not know. Neurine has been suggested to be the toxic substance, for it has been found in the urine of those suffering from Addison's disease, the characteristic lesion of which is degeneration of the suprarenal bodies. Albanese found that neurine was many times more poisonous to frogs from whom the suprarenal capsules had been taken than to those who were not thus operated upon. There seemed, however, to be no difference in the action of strychnia and atropia when they were given to frogs with and without their suprarenal capsules. By his spectroscopic studies McMunn has been led to believe that it is the duty of the adrenals to select from the blood its wornout coloring matter, and that their failure to do this in Addison's disease, causes the characteristic staining of the skin and other symptoms of the malady. It is also true that in the urine of patients suffering from this trouble such pigments are discoverable, and are abnormal ingredients in it. In

the literature of tissue extracts there have been reported only a very few trials of suprarenal extract for the relief of Addison's disease, and the results of its employment have not been encouraging, although we might expect from theoretical considerations as much success as from the use of thyroid extract in myxoedema. Chauffard observed from the subcutaneous injection of a suprarenal extract in cases of Addison's disease, a very moderate improvement in strength but no other noticeable effect. Oliver observed a slight decolorization of the skin, and also a trifling gain in weight; but this improvement was not progressive, and not very striking.

In pernicious anemia the marrow of the long bones is often affected and the changes in it are the most characteristic of the disease aside from those in the blood. It was natural, therefore, applying the same reasoning that has been applied to myxoedema, diabetes and Addison's disease, to try bone marrow extract as a remedy. It has proven remarkably successful in the few cases that have been reported. One of the most striking and fully reported is that of a gardener treated by Fraser, of Edinburgh. The patient under the usual treatment of iron and arsenic steadily lost ground. The case seemed almost hopeless when the employment of bone marrow was begun. Under its influence, together with arsenic and salol, the number of corpuscles increased from less than 900,000 per cmm. to over 4,000,000, and the amount of hemoglobin rose from 18 per cent to 85 per cent, when the patient was able to resume his occupation. In this case to be sure arsenic and salol were given, but they had been faithfully tried for many weeks before the bone marrow was brought into service and the patient steadily declined under them. The bone marrow was eaten raw by this patient, but glycerine and watery extracts have been used by others. We know nothing of the active principles or definitely of the mode of action of this remedy. Bone marrow has long been recognized as one source of blood cells, but if it will stimulate the production of blood corpuscles even when fed to those who are anemic it would seem probable that its living cells not only have the power of producing corpuscles but that the marrow contains chemical substances which will stimulate this power when it is lacking.

It was the advocacy by Brown-Sequard in 1889, of testicle extract as a general tonic to those who were aged or whose nervous system was especially worn, that directed attention strongly to a possible scientific basis for the employment of extracts of animal tissues. Testicle extracts have naturally therefore been more extensively used than any other. But as their mode of action is not so

*specific as that of thyroid extract, our knowledge cannot be said to be as definite as it is in regard to that. As is true of all extracts of animal tissues, the chemical composition of testicle extract is very complex. It has been suggested that the active principle of it is either spermine or nuclein. Before describing the modes of action of these chemical bodies, it will be best to recapitulate from the observations of many the most noticeable effects of the crude extract. Henoque observed a steady increase in the oxyhemoglobin of the blood in patients who were treated by it. The force of the heart is usually strengthened and vascular tone is increased. If the heart beats quick or unsteadily it is generally made to beat more regularly. Respiration is not changed by the drug. Appetite is usually improved, and intestinal peristalsis is mildly stimulated. The quantity of urine is sometimes temporarily diminished immediately after subcutaneous injections of the extract, but urea is commonly increased in amount, although phosphoric acid is diminished. The temperature of the body may remain unchanged, but often, and especially in those who are weak it is temporarily raised. In some patients cutaneous sensibility to heat was found to be increased. The latent period of cutaneous reflexes was also found to be diminished. After treatment by this extract the mind was often clearer and more active. When used in the insane usually no mental change was observed, although sometimes there was a temporary increase of nervous excitement. The crude extract has also been found to be very mildly bactericidal.

If we contrast with these effects of the crude extract, the effects that have been observed from the employment of pure spermine, a very marked similarity will be noticed. There occurs the same moderate increase in the force of the heart; improvement in the appetite, and the activity of the digestive organs and intestine, the same mild mental and nervous stimulation, a similar increase in oxygenation of the products of tissue waste for the proportion of urea to the total nitrogenous matter in urine is found uniformly to be increased. But if we compare the physiological action of nuclein with spermine or crude testicle extract, a very marked difference is observed. Nuclein is a phosphorized proteid and is the chief chemical constituent of cell nuclei. It varies somewhat in character and in physiological action, with the tissues from which it is obtained. All nucleins are alike, in that they consist of nucleinic acid combined with a base, but the base differs in different tissues. Nuclein is harmless when given by the mouth, or hyperdermatically even in very large doses. It causes no func-

tional troubles, but it does cause, as was first shown by Germain See, a very marked leucocytosis and it energizes inflammation or reawakes it when it is comparatively quiescent. In this respect it resembles the effect of Koch's lymph in stimulating latent tubercular inflammation. Germain See recommends nuclein for the purpose of reawakening latent tuberculosis, when it is suspected, and yet cannot be diagnosed, and also suggests its trial as a curative agent, upon the ground that the leucocytosis which it provokes may enable the affected individual to combat more successfully the specific cause of the infectious inflammation. Vaughn has shown that nuclein possesses strong bactericidal powers. As a destroyer of bacteria it may prove especially useful, because of its harmlessness to man. Vaughn has used nucleins with considerable success in diphtheria, tonsilitis, and some of the suppurative disorders, and his experimental studies of its power in combating tuberculosis has encouraged his perseverance in its experimental employment in this malady. But neither the leucocytosis nor the destruction of bacteria which nuclein produces, resemble at all the mode of action of testicle extract.

Testicle extract has been used in the most varied diseases, and according to the observations of many individuals, it often does good. For example, it has been employed with good results in scurvy, general weakness, atonic gastrointestinal troubles, anemias, malarial cachexia, cancer, diabetes, tuberculosis, hemiplegia, neurasthenia, and locomotor ataxia. In none of these diseases is it thought to have any specific action; but it proves to be a general tonic, stimulating the tissues to renewed activity, so that greater strength and a feeling of increased well-being are noticeable. The most striking good results have been obtained in locomotor ataxia. The pain that is often so tantalizing to those who suffer from this disease, disappears; steadiness and accuracy of motion are increased, so that in many instances the characteristic ataxia wholly disappears. It is not supposed, under these circumstances, that the structural lesion in the spinal cord is removed, but only the functional activity is stimulated. Better results have been observed by many from the employment of testicle extract in diabetes than from pancreatic extract. Its effect, however, is entirely a stimulating one, improving the strength and nutrition of the patient rather than removing the malady. How persistent these good effects are, we cannot say, for the extract has not been used long enough to make it possible to demonstrate this.

It is true that these good effects have been questioned by very

many physicians, and their occurrence has been explained as due to mental suggestion rather than to any chemical stimulant or tonic which the extract contains. But the weight of evidence is certainly in favor of the extracts, and when it has been used upon those who were ignorant or mentally unsound, it has proven useful, although in such cases mental suggestion could play no part. Numerous observers have tried the experiment of substituting other things for testicle extract without their patient's knowledge, and the occurrence of good effects, when it was used, and their absence when other things were substituted would seem to demonstrate that it possesses some power. Testicle extract, given by the mouth, produces no good results, or at least is very variable in its effects. It must be administered subcutaneously or by the rectum.

Extract of the brain or nerve tissue produces almost the same therapeutic effects as testicle extract. The employment of extract of nerve tissue was suggested to Constantine Paul by observations made by Babes while he was administering Pasteur's antirabic treatment to patients. The latter noticed that patients, who were under treatment for rabies, but who at the same time were suffering from varied maladies, and more particularly nervous ones, were greatly benefited by the extract of spinal marrow, which is used in Pasteur's antirabic treatment. Constantine Paul prepared an extract of the gray matter of the brain in the same manner that Brown-Sequard recommends the preparation of testicle and other extracts. He found that the most noticeable effects were improvement in strength and feeling of well being, a rapid strengthening of the heart, and a regulation of organic functions. It is also found to be especially useful in locomotor ataxia, neurasthenia and allied affections. Mental derangement is not helped by it, or if at all only very temporarily. Chlorosis, and even more profound anemias, have been decidedly benefited by it. Good results in these and numerous other chronic affections characterized by a lack of vigor and nutritive activity, have been noticed by very many good observers.

Time will not permit me to include in this essay the uses of blood serum, its modes of modification and its relationship to immunity to infectious diseases. Already in it a cure for tetanus seems to have been found, and laboratory and hospital experiments excite hope of a cure for diphtheria.

I do not wish to have it thought that in summarizing as I have the modes of action and therapeutic effects of the animal extracts, chiefly used to-day, that I advocate them as perfect cures, or, as

would seem from the long list of diseases that have apparently been helped by testicle extract, as cure-alls. But I have endeavored to show that they are a group of substances worthy of careful study; that what study has already been devoted to them has been pregnant with advancement in physiological knowledge and has opened a new field which demands research by the physiological chemist; and that their employment as therapeutic agents has a scientific basis.

65 RANDOLPH STREET.

THE NERVOUS DISORDERS OF TYPHOID FEVER.

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The most frequent nervous disturbances in typhoid fever are the mental disorders. There is nothing distinctive in these conditions and they do not differ from the mental troubles which accompany other infectious diseases, attended by high temperature. Enteric fever leads in the frequency with which the mind is involved; nearly one-third of all cases presenting some mental disturbance. It is closely followed in this respect by pneumonia and acute rheumatism.

The most frequent mental aberration in typhoid fever is simple delirium; a condition which is commonly excluded under the ordinary definitions of insanity; it is however, in its essential nature, not different from insanity, excepting that it is usually of much shorter duration, and may have periods of remission of a few hours.

We offer provisionally the following classification of the mental disorders of typhoid fever:

Delirium, usually present during the height of the fever, and subsiding with the fall of temperature.

While this is the ordinary course of the delirium of fever it is well to remember that it may appear very early in the disease, or it may gradually pass into a true psychosis in the period of convalescence. In our judgment much light would be thrown upon this subject if studies were made of the ordinary delirium of typhoid especially with reference to the toxicity of the urine, or the presence or absence of efficient excretion by the kidneys at the times and in the cases in which it is most developed. Unfortunately no

studies seem to have been directed to this particular point; and in our judgment it offers one of the most fruitful fields for investigation. Another point on which the literature throws little or no light is the relation of the delirium to the progress of the fever. In a general way the more severe the fever the greater the delirium, though there are many marked exceptions to this rule. In some comparatively mild cases, delirium may persist throughout the course of the disease, while in others, notwithstanding a very high temperature and rapid exhaustion, the mind remains clear.

True psychoses which develop at the beginning or during the course of the fever.

It is probable that most of these mental disorders are true toxemias, though the inherited or acquired tendencies toward mental disease play an important role in their production. Almost every form of mental disorder has been noted during typhoid and they sometimes precede the development of temperature or other signs of fever. Bristowe and Murchison describe acute mania as being the very first sign of a typhoid fever. McDowell¹ mentions a case presenting typical symptoms of parietic dementia while the fever lasted. Demetrescu² describes a similar case. Gresinger³ has noted melancholia, mania, and chronic dementia and marked perversions of the moral nature have been observed by Greenfield⁴, Christian⁵ and Liouville⁶. Daly⁷ speaks of aggressive mania, Lacoste⁸ of religious monomania, Leudet⁹ of ambitious monomania, and Tuck¹⁰ and Bernheim^{11,12} describe furi-bund attacks of brief duration. Brunon¹³ mentions suicide and Le Grand du Saulle¹⁴ speaks of the important medico-legal relations of the mental state in typhoid. The rule is that the more severe the fever, the greater the delirium, but this is much less true regarding the true psychoses, as in these disorders heredity and individual predilection play a much more important part.

True psychoses developing during or after convalescence.

Like the preceding division these may present any variety of mental disease, and heredity and other predisposing factors play an important role in their production. Unlike the preceding group they are not toxemias at least in the majority of cases. It is possible that they may have their origin in infectious conditions, the insanity being the result of certain progressive changes set up during the early stage of the disease. To our mind, however, a much more probable theory would be to look upon the profound tissue changes and disturbances of nutrition which follow this disease as the real foundation on which these psychoses are built.

Regarding the prognosis of these several divisions, the outcome of simple delirium is almost always favorable; particularly is this true if the delirium shows a close relation to the fever, and increases and decreases with it. True psychoses depend much on their form. But little can be hoped for in the primary delusional states, but mania and simple melancholia have a favorable prognosis. As a general rule the insanity which develops early and during the height of the fever is much more favorable than one developing during convalescence, or at a later period.

Before passing to the nervous affections other than mental, we will briefly refer to the cases in which the typhoid poison seems to spend its whole force on the meninges of the brain and spinal cord. Not only in the membranes, but also in the brain and cord has the bacillus been identified. Vincent¹⁵. Secondary mixed infections of the nervous system are by no means uncommon, and Vincent¹⁶ has identified the bacillus typhosus and streptococci in association. Tissier¹⁷ also reports a large meningeal abscess, and Fussell¹⁸ a case of tetanus as complications. The primary involvement of the meninges is described by Letulle¹⁹, Gonduin²⁰, Hainaut²¹, Fortin²², Melville²³, Drews²⁴, Peter²⁵, and Chauvanis²⁶.

Cerebral palsies are comparatively frequent complications, but in most instances are due to disturbances in the vascular supply secondary to thrombosis and embolism. The most frequent are hemiplegia, Cayley²⁷, Newbolt²⁸, aphasia, Curran²⁹, Jones³⁰, Raven³¹, Ross³², or the two associated, Donkin³³ and De Creft³⁴.

While the brain largely escapes the primary degenerations, the same cannot be said of the spinal cord. Voppel³⁵ found extensive degeneration of the cord; Vulpian³⁶, myelitis; Ebstein³⁷, sclerosis; Leudet³⁸, acute ascending myelitis, and Martel³⁹, the symptoms of tabes in a child of ten. Paraplegia is noted by Duprez⁴⁰, Henoch⁴¹ and Courtade⁴². Tremor has been observed by Bouveret⁴³ and Clement⁴⁴ in the latter case it resembled that of paralysis agitans.

Sensory disturbances seem to be rare though Rosenbach⁴⁵ mentions neuralgia as an early symptom and Calmette⁴⁶ describes a case of hemianesthesia. Gibney⁴⁷, under the term "typhoid spine," described a sequela of typhoid characterized by pain in the back, restricted movements, and general nervous symptoms. He attributed this condition to an inflammation of the periosteum, ligaments and other structures about the spinal column. Fussell⁴⁸ describes similar conditions. Osler⁴⁹ has reported several cases, and analyzed those of Gibney. He comes to the conclusion that "typhoid spine" as commonly understood, refers to a variety of diseases

which are accompanied by pain in the back, but in his own and the most of the cases so far reported, the condition is essentially a functional neuroses allied to the so-called "railway spine" or Erichsen's disease.

Perhaps the most frequent neurosis after the mental changes are those which arise in the peripheral nerves. Whether these disturbances begin in the nerves or muscles is still an unsettled question, and it is perhaps an unimportant one, as pathologically the muscle and peripheral nerve may be regarded as a single structure, and one cannot easily be affected and the other remain intact. Long since Dauvé⁵⁰, Guéniot⁵¹ and von Kraff-Ebing⁵², described certain changes in the muscles that were invariably present in typhoid. Later Pitres and Vaillard⁵³ found almost constant changes in the peripheral nerves even when there were no signs pointing to neuritis during life. The bearing of these observations are important as tending to show that degenerations and inflammations of nervous structures have their origin in direct poisoning of the tissues during the toxic stage of the disease. This process once set up may perpetuate itself and only reach a degree in which symptoms are caused long after all signs of the fever have disappeared.

Bury⁵⁴ has given us a most excellent study of post-typhoid neuritis and cases have been reported by Kearns⁵⁵, Friedheim⁵⁶, Longstreth⁵⁷, Piliotis⁵⁸, Liouville⁵⁹, Stinzing⁶⁰ and Vulpian⁶¹.

On a priori grounds one would think that the general impairment of nutrition which often follows typhoid fever would prove a fruitful source for the development of the great functional neuroses, epilepsy, hysteria and neurasthenia. While in our individual experience we recall a number of cases, yet they have not been frequent. On the whole we are disposed to regard these complications as rather exceptional, especially as the literature is almost wholly silent on this point, with the exception of an article by Haywood⁶², on hysteria in young children after typhoid, and a case of epilepsy by Harris⁶³, and one of catilepsy by Jacobi⁶⁴.

In closing this brief résumé of the principal nervous complications of typhoid we desire to call attention to the treatment by the use of cold baths, after the method of Brand. In our judgment there is no more certain means of securing elimination and lessening the frequency of nervous complications than by this method. Altogether too much importance has been attached to the mere lessening of temperature in typhoid and too little to the means by which it is accomplished. Our experience in typhoid is

decidedly adverse to the use of internal antipyretics, and we think they add materially to the dangers of involvement of the nervous system.

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THE DIAGNOSIS IN PHARYNGEAL ULCERATION.

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It must be admitted that any material deviation from known paths in medicine should be undertaken with great care and circumspection. The element of uncertainty characterizing most medical questions has instilled into the profession a certain degree of skepticism regarding pathological innovations. If the pathological deductions contained in this paper prove to be such a digression from the beaten paths of pathology, it will be understood that they are prompted solely by the hope that their presentation may be an incentive to a free discussion which will either confirm or controvert the premises upon which the paper is based.

A careful search through the literature at my command, throws but little light on the subject of pharyngeal ulcerations, other than those of syphilitic or tubercular origin. According to the large majority of accepted authorities such a condition does not exist, at least it is tacitly denied by its entire omission.

Isambert, Semon, and possibly Bosworth, have been practically alone in admitting the possible occurrence of any such ulcer. A very pertinent question suggests itself in this connection: Why is the mucous membrane of the pharynx, alone of all the structures

in the body, endowed with immunity from simple ulceration? The entire digestive tract, the urinary apparatus, the generative organs, the eye, ear and entire integument are frequently victims of that, oftentimes most obstinate and intractable of conditions, simple chronic ulceration. Yet we do not admit the possibility of such a condition in the pharynx. This locality certainly is not free from exposure to trauma, nor from inflammatory conditions, which in other structures would develop ulceration.

McBride admits "sometimes the acute inflammation is severe enough to destroy the superficial layer of epithelium," and also describes a "granular pharyngitis," both of which conditions would admit of subsequent destruction of tissue. Lennox Browne says: "Ulceration of the pharynx seldom occurs as the result of simple angina; though it may be the sequel of so-called hospital sore throat or of wounds from foreign bodies or poisons." Dr. Semon, two years since, presented a case to the London Laryngological Society, which he did not consider either tubercular or syphilitic, inasmuch as it did not improve under antisiphilitic treatment, and careful, repeated microscopic examinations failed to show traces of tubercular disease. In addition there was wanting all the usual macroscopic and physical signs of tuberculosis. About the same time Küster reported to the Gothenberg Medical Society a case, in which he claimed the diagnosis of primary tuberculosis of the pharynx, "with a negative family history, without discernible disease of either lung or larynx; the microscope failed to reveal tubercular bacilli; no improvement occurred under local treatment with lactic and chromic acids, but with it the ulcer spread all over the pharynx and soft palate." Several members of the society were inclined to question the diagnosis and the editor in reporting it, takes occasion to subscript the following note: "I cannot help doubting the character of this disease, both on account of the circumstances as given, and the appearances of the pharynx."

ETIOLOGY. As might be expected from the foregoing remarks, the etiology of simple pharyngeal ulceration is not as clear cut and definite as could be desired. Bacteriologic research can do little more than assist in establishing the very probable absence of tubercular infection. Microscopical examination may elucidate very little evidence on the question of syphilis. Chemical irritation and trauma are very probable elements in the etiology; while a peculiar local and general vulnerability, and a weak constitution or unsanitary surroundings may each have their influence; yet they are conditions so general in character that they signify but little from an

etiological standpoint. Theoretically, it might follow diphtheria or scarlet fever, and in so doing establish the etiology of that particular case, but it does occur, if existent, independent of these conditions. In the two cases to which I shall refer in this paper, a strong probability of traumatism as a possible factor exists in one. In the other, that popular etiological excuse "taking cold," is the only cause that a more than ordinarily intelligent patient was able to offer. It is however, my belief, in the absence of more positive evidence, that the second case was the naturally expected sequence of the series of changes involved in inflammation, desquamation and granulation; such conditions in short, as we would anticipate from the same causes operating in the uterus, vagina, rectum, or eye. The nutrition of the part being impaired there would result a molecular destruction corresponding in degree to the extent of that impairment.

I fully realize the fact that two cases do not furnish a tangible basis for much pathological theory, but I think that the rarity of the assumed condition, and the advantage of recognizing it as such, or on the other hand the advantage of refuting its existence, warrant their presentation.

CASE I. In May, 1891, K. M., aged thirty-seven, came to my office complaining of difficulty in swallowing; of burning, painful soreness high up in the throat most apparent when talking, or when long exposed to the open air. The nasal twang was apparent, though not marked. There was present at times a thick mucopurulent discharge. On examination I found the tongue coated, the right tonsil somewhat hypertrophied, and the left almost invisible. In the pharynx, extending into the vault, was an ulcer about as large as a silver dime. By elevating and retracting the soft palate more than half the ulcer was plainly visible. There was a well-marked edge, yet no induration. It was covered with a dirty grayish mucopurulent, adhesive secretion. The pain was not constant nor paroxysmal; occurring most severely when deglutition was attempted. The ulcer itself was painful to the touch, and after thorough cleansing, somewhat inclined to bleed. There was no evidence of adhesions forming, or cicatrices of former ulcers. The lymphatics surrounding or elsewhere showed no appreciable enlargement. The temperature was repeatedly observed both morning and evening, and but only on a single occasion, was there a more than ordinary rise. Syphilitic history was denied emphatically, and I doubt not sincerely. A son born since then, shows no hereditary taint whatever. The family history is negative, he being

the eldest of a family of four. His parents are both living and healthy. I was then rather inclined to think the ulcer syphilitic in character, and began a corresponding treatment, both local and constitutional. After several weeks' persistence, during which the ulcer rather increased as to size, though as I thought was filling up slightly, iodide was pushed to the extent of thirty grains, three times daily. The ulcer was treated with strong solutions of iodine; with silver nitrate in various strength; insufflations of iodol; applications of copper and other remedies were used, but with little effect. Meanwhile I had changed the constitutional treatment to mercury; this, however, I find from my case record, was discontinued in ten days, as the symptoms seemed aggravated rather than relieved.

At this juncture the patient, at my suggestion, saw two well-known authorities. One of them unhesitatingly pronounced it "undoubtedly tubercular," the other, with an equal amount of assurance, affirmed it "was certainly specific." I had previous to this made several examinations for evidence of tubercular bacilli, and I now entrenched myself behind the microscopical examinations of a much more competent microscopist. In each instance there was no development tending in the least toward establishing the tubercular theory. I now applied a weak solution of glacial acetic acid, and with careful cleansing was able to establish a healthy granulation, which continued, with frequent slight interruptions, though with very slow progress, until complete recovery, about nine months after I first saw the case. The patient, a more than ordinarily intelligent man, is inclined to attribute the condition to an injury received some months previously. While walking through a dark hall with a pipe in his mouth, he came in contact with a door, driving the pipe stem against the pharynx, causing a soreness, which soreness, by the way, persisted until the ulceration had healed. Observe, however, this could not have been a primary infection from the pipe because there was no incubation period. And while it must be admitted the accident might have been a very convenient and probable process of infection, the facts in the case and the subsequent history do not bear out even a presumption of an infected pipe. I have seen this patient at frequent and repeated intervals since, and find none of the evidence of syphilis in secondary or tertian forms, but only a perfect cicatrization.

CASE II. In May 1894, Dr. Van Hook, referred to me Mrs. P. aet. 39, with symptoms almost identical with those related in case

I., except that the ulcer was somewhat larger and more violent in its macroscopic appearance. Consequently I will not speak the symptoms further than to say, there was no evidence of hereditary taint of either tubercular or syphilitic nature. Her husband, a tradesman, showed no evidence of syphilitic infection. The family history is good, except a sister who died thirteen years ago, presumably from tuberculosis. There was no lymphatic enlargement; nor was there pulmonary involvement to be detected. A repeated and careful microscopic examination failed to show tubercle bacilli present. Antisyphilitic treatment was given for six weeks with the various changes possible, but with little or no results, so far as healing the ulceration was concerned. I now changed the treatment to a simple tonic one, and locally applied alumnol in strength, varying from 5 to 20 per cent. The most gratifying results followed, and in two weeks there was complete repair of the most satisfactory sort.

I do not believe these cases were syphilitic ulcers for the following reasons: There was no induration; there was no evidence of gumma elsewhere; the cicatrization was not characteristic of that disease; there was no tendency to perforation or extension to the soft palate; there was little or no regurgitation; antisyphilitics aggravated the condition; there was no concomitant glandular enlargement at the angle of the jaw, a most usual and almost necessary symptom in syphilis. There was no induration of the tonsil; and lastly and most important, there have been no subsequent secondary or tertiary symptoms developed in case No. I., though over three and a half years have elapsed since I first saw him; and in the second case the patient is now well advanced in pregnancy with no symptom of aborting.

I have given above my reasons somewhat for excluding the diagnosis of tubercular involvement, and need only add in brief the lungs were sound, the family history good, no night sweats, no cough, no evening rising of temperature. The ulcer tended rather to nasopharyngeal extension. The uvula was not enlarged. Not very severe pain, rather a soreness on attempting deglutition. The surrounding mucous membranes were hyperemic rather than pale. Marked increase in weight of both patients.

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GYNECOLOGICAL COMPLICATIONS OF TYPHOID FEVER.

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To avoid repetition I will at the outset recall certain phases of the typhoid infection which are important factors in the complications under consideration.

1. The effect on the vascular system, the alteration of the blood and of the walls of the vessels, later, retarded venous circulation and finally general anemia. 2. The atonic condition of the muscular system. 3. The exhausted state of the nervous system. 4. The diminished resistance to the invasion of the pathogenic germs. 5. The close proximity of the intestinal lesions to the generative organs.

The changes in the blood and blood vessels may manifest themselves during the first stage in severe uterine hemorrhage. This may be the only symptom which leads the patient to apply for advice. If pelvic examination reveals no local lesion, a study of the general symptoms for several days may be required to discover the real cause of the hemorrhage. The usual means for arresting the same may be resorted to—ergot and digitalis internally. In severe cases the local use of astringents may be indicated. Later in the disease, passive congestion and its sequelae may manifest itself. The amenorrhea which frequently occurs during and after convalescence, is simply a part of the general anemia, and should be treated only as such.

In the atonic condition of the muscular system, we find an important factor favoring displacements. The diminished resistance to the invasion of pathogenic germs is a most important feature. Any simple inflammatory process which under ordinary circumstances would result in perfect restoration, is liable, during or after an attack of typhoid, to assume the suppurative form. The importance of "mixed infection" in its relation to typhoid fever has not yet been fully established, but, bearing in mind the frequency with which suppuration occurs in various parts of the body, during or after typhoid, it is fair to assume that this infection may be an etiological factor in the production of inflammatory processes of the female pelvic organs.

The disastrous effect which typhoid fever has on gestation, producing in from sixty to eighty per cent of these cases premature birth, is in part due to the tendency to hemorrhage from the

endometrium, partly to the altered state of the nervous system, and is further favored by the great muscular atony. Again, the profound nervous exhaustion and cardiac weakness explain the tendency to shock which attends premature delivery or labor at full term. In the case of pregnancy, should premature delivery or labor at full term occur, the case demands the most scrupulous attention to aseptic management. The predisposition of this complication to shock, to post-partem hemorrhage, and the great susceptibility to infection must all be anticipated with a view of preventing rather than meeting their occurrence.

As to the methods of preventing or treating shock, hemorrhage or infection, the usual rules governing obstetrical practice would apply here.

DIAGNOSIS. A pathological state of the tissues occupying the right side of the pelvis is particularly likely to tax the diagnostic skill of the attendant. The symptomatology of it and typhoid is often so much alike, sometimes entirely so, that he who judges from symptoms alone cannot avoid making errors for which the patient may have to pay for the rest of her life. Every one who has much experience in abdominal surgery has met cases in which symptoms of a suppurating tube or ovary has been misinterpreted as typhoid, and many a skillful family doctor can tell of imagined cases of "cellulites," which on subsequent observation proved to be a typical, uncompleted case of typhoid.

Given a case with pains and muscular rigidity of the abdomen, the tenderness most marked on the right iliac fossa, intermitting fever, irregular chills, coated and red tipped tongue, profuse perspiration and diarrhea and we have a complexus of symptoms which may just as well occur in the third, or fourth, or fifth week of a typhoid case complicated with suppurating mesentary glands, as in a patient with pyosalpinx, ovarian or extra, or intraperitoneal pelvic abscess without typhoid fever, or to a typhoid complicated by a focus of suppuration any where in either side of the pelvis. The acute splenic tumor, one of the most common symptoms of typhoid, may also result from pelvic suppuration without typhoid.

As possible complications calling for a differential diagnosis I will mention those most likely to occur in their order of frequency: 1. Nonsuppurative inflammations, especially parametritis and pelvic peritonitis. 2. Suppurative inflammations, pyosalpinx and pelvic abscess. 3. Ovarian and parovarian cysts.

To demonstrate the presence or absence of these lesions, a physical examination is absolutely necessary. In this we must

determine the position, size, shape and mobility of the uterus and its appendages. If, on making a vaginal examination we find tenderness with slight induration at the base of one or both of the broad ligaments, the parametritis should be treated as usual by frequent hot vaginal douches, and the application of hot fomentations, not poultices. The progress of the disease should be carefully watched. If resolution does not take place, it is important to discover early any collection of pus. This would be indicated by an increase in the area of induration softening, and usually decided crowding down, into some point in the vagina.

In cases of doubt examination under anesthetic and the exploratory puncture may be necessary. This examination should not be attempted by any one who has not acquired the skill to decide readily on pelvic lesions, and all necessary preparations should be made for opening the abscess then, if found. Prolonged anesthesia is dangerous to the typhoid state, and the local intestinal lesions, as well as the general tendency to peritonitis, demand most delicate manipulation. The patient should be examined by the bimanual method. An examination per rectum will be of great assistance. The indiscriminate use of the uterine sound cannot be too strongly condemned. The needless traumatism thus produced on the endometrium, favors the invasion of pyogenic bacteria for which our patient presents a very feeble resistance. It is needless to add that such examinations should be made strictly on aseptic principles. The method of dealing with pelvic abscesses in typhoids is the same as usually adopted. The important point is, to discover them early, and to evacuate the pus.

A pyosalpinx will present its characteristic physical signs, we find a circumscribed elongated tumor, which can usually be traced to the uterine insertion. It cannot well be mistaken for suppurating appendicitis resulting from typhoid, if we know how to look for both. The one is felt distinctly through the vaginal vault, in the other the induration is above and to the right of it and can be but felt immediately beneath the surface of the ileocecal region. Radical measures for the removal of an old pyosalpinx are not indicated during the acute stage of typhoid fever. Its behavior should be watched, for a rapid increase in the size of the tumor would require active interference. In this event, if closely adherent, it should be treated by puncture and drainage, like the pelvic abscess; otherwise, removal later, through abdominal section is to be preferred. It may seem farfetched to consider ovarian cysts in

this connection, but since limited exudates sometimes occur in the course of typhoid, this question may come up.

The only case of appendicitis on which I had occasion to operate presented a fluctuating tumor which extended to the median line. One of our ablest men made the diagnosis of ovarian cysts on this case. I took it to be suppurative circumscribed peritonitis, resulting from a previous abortion, as she dated her illness to that event. It proved to be appendicitis. The limiting cavity was filled with sero-purulent fluid. What the cause of this particular case of appendicitis was, I do not know; but a case, secondary to typhoid, might present the same features and require a differential diagnosis. Another case from which I recently removed an ovarian cystoma, a pyosalpinx and a hematosalpinx, had passed for a case of typhoid complicated with appendicitis by one of the attending physicians. The ovarian tumor is likely to be more movable; if adherent, would be likely to crowd down into the cul-de-sac.

Post-typhoid suppuration of these tumors has been observed by various writers. R. Werth has some observations in this line. He removed from a patient who had eight months previously been sick with typhoid fever, a left ovarian dermoid, containing thin, purulent fluid. Culture of this contained only the typhus bacillus. He also cites another case in which the patient three months before had typhoid, and has collected from the literature a series of similar cases.

Werth ascribes to the typhoid bacillus pyogenic properties, but believes this quality is manifested only under particularly favorable conditions, individual susceptibility, or acquired by the general effects of this infection.

VENETIAN BUILDING.

THE INJURIOUS EFFECTS OF PESSARIES.

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I present a pessary recently removed from a woman seventy-four years of age. It is a hard rubber ring pessary, measuring 27 c. m. in circumference, having a thickness of 3 c. m. and weighing 33.6 grams. The internal orifice, designed to receive the cervix, is $7\frac{1}{2}$ c. m. in circumference. It had been placed in the vagina of this patient some two years ago for the purpose of relieving a prolapsus uteri. The first year it occasioned little, if any, disturbance. The beginning of the second year an extremely offensive leucorrhea was noticed, which excoriated the vagina and vulva. Pelvic and abdominal pains supervened, but the principal subjective symptom was the leucorrhea, which had become of so objectionable a character on account of the very offensive odor that the patient was obliged to practically isolate herself. Upon examination the vagina was found contracted and inflamed. The pessary could be felt in the upper part of the vagina imbedded in the tissues which had almost surrounded it completely. With considerable difficulty it was removed by means of the examining finger, assisted by a large vulcellum forceps. Its removal caused considerable laceration of the vaginal mucous membranes and perineum. Hot bichloride douches were advised, and three weeks later, when the patient was again seen, the lacerations had cicatrized and the leucorrhea, now no longer offensive, had materially diminished in quantity. There was no prolapsus uteri observed.

I have had occasion during the past sixteen years to remove twenty-eight other pessaries which had been retained a variable period—none of them more than one year—and which had become the starting point of inflammatory conditions, fortunately none of them of sufficient severity to threaten life. Many cases are, however, to be found in medical literature illustrating the danger of allowing pessaries to remain in the vagina without care. In American, English, French, German, Russian, Polish and Italian journals there are reported more than 300 cases, many of them collected and classified by Neugebauer.¹

The vagina was certainly never intended as a receptacle for foreign bodies. The degree of tolerance varies in different cases according to the form, size and material of the pessary, depending also upon its proper application and care. In one case it became

imbedded in the tissues after two months. In other cases it was freely movable after twenty years. Hamilton² saw a case of perforation in eight months, whereas in other cases women have worn pessaries many years without serious consequences. In general, however, prolonged use of a pessary occasions unnatural dilatation of the vagina, which in time becomes irritated, inflamed and often excoriated.³

The irritation produced by the presence of a foreign body causes an increase and at the same time a rapid change in the vaginal secretion, which soon becomes thickened and then mucopurulent.

Little by little the external genital organs become swollen and the finger when introduced into the vagina enables us to recognize a ridge of mucous membrane, the origin of which is difficult to explain, if we do not know the nature of the accident. The ridge is formed by the swelling of the vaginal mucous membranes in front of the anterior border of the pessary. The bladder, which is full of urine, may project above the pubes, where it may be clearly defined by percussion. The great pressure caused by the pessary is added to that which results from the swelling of the mucous membranes and of the submucous cellular tissue, so that the obstruction of the urethra may gradually become complete. The retention of feces occurring in the same manner is very rarely complete, although one case of its occurrence has been reported by Bayard⁴ and many cases of obstruction of the anus are reported where the pessary has been pressed into the rectum.

Often a forgotten pessary, which has been misplaced, causes inflammation of the tissues surrounding the vagina, resulting in parametritis, pelvic abscess, pelvic peritonitis, general peritonitis with ileus, etc., terminating sometimes in sepsis, which may result in cachexia and death. In other cases the normal secretion is increased, profuse and offensive leucorrhea supervenes, ulcers or even fistulae may form in the bladder and rectum. It is especially worthy of remark that a part of the increased secretion may gather on the surface of the pessary near the fundus and gradually encrust it with hard calcareous matter, so that in time the opening of the pessary is closed. Ultimately adhesions may be formed in the uterus resulting in the most serious consequences. These effects are unfortunately seldom made known until too late.

The injuries produced by the presence of pessaries in the vagina act in two ways: They occasion in the entire vagina and especially around it an inflammation which terminates in the forma-

tion of fungosities, or which gives rise at one or more points to perforations which are merely the results of gangrene from compression.⁵

Bérard reports the case of a pessary which had remained in the vagina for twenty-five years, finally producing almost complete obliteration.⁶ Instead of the normal vagina there remained only a cul-de-sac, which communicated with the remainder of the cavity and the foreign body by means of a small opening situated in the upper part.

Considering the injurious effects of pessaries more in detail, I instance: 36 cases of vesico-vaginal fistula, 21 cases of perforation of the bladder, 1 case of uretero-vaginal fistula, 1 case of perforation of the urethra, 24 cases of perforation of the rectum, 11 cases of perforation of the rectum and bladder, 2 cases of perforation of Douglas' cul-de-sac, 5 cases of forcing of a pessary by pressure into the tissues surrounding the vagina.

In a case reported by Deneux, the perforation of the recto-vaginal septum had been occasioned by the stem of a ball pessary. The crown was found to be retained by vegetations. They formed a mass which was very similar to a cauliflower excrescence and scarcely permitted the body and branches of the pessary to be felt in two places.⁷ The mechanism of these perforations from gangrene is simple. The process often lasts many years. The vaginal, urethro-vesical and rectal mucous membranes are continuously compressed for a long time between the foreign body on the one hand and the bony wall of the pelvis on the other. This results in swelling and redness, infiltration and hardening of the tissues where pressure is exerted, terminating in a slow atrophy, necrosis and fistula.

Other accidents occur. I note:

6 cases of pessary forced into the uterus. In one of these cases a ring was introduced by a midwife into the cervix immediately after labor. Again a glass stem four and three-fourths inches long was retained in the vagina twenty-five years and gradually forced its way into the uterus. In another of these cases a cup pessary was forced into the uterus and remained there several weeks.

1 case of proliferating new growth in the rectum in consequence of protracted use of pessary.

1 case of atresia of os and pyometra resulting in death.

1 case of new growths in both walls of vagina.

3 cases of abortion.

2 cases of especially difficult removal during the fourth month of pregnancy.

8 cases of carcinoma, most probably occasioned by pessary.

6 cases erroneously diagnosed as carcinoma owing to the clinical picture pre-

sented on account of imbedded pessary, attended with ulceration, hemorrhage, offensive odor and pain.

7 cases of strangulation of vaginalis in pessary, in one case during pregnancy.

1 case where the entire uterus slipped through the lumen of a pessary during a violent fit of coughing and was so strangulated that the pessary had to be cut into pieces in order to extricate the uterus.

1 case where the infection from an ulceration due to a pessary occasioned a kind of typhus. Patient recovered on removal of the pessary.

1 case where the patient suffered terrible pains during nine months in a partly reclining and partly sitting position.

1 case of chronic peritonitis attended with constant abdominal pains and vomiting.

Many cases of imbedded pessary have been observed. The pessary remains movable in the vagina but will not allow withdrawal. This has been especially observed in the case of egg and ball pessaries but also in the case of round rings and Hodge pessaries. The cause is undoubtedly partly due to senile shrinkage of the vaginal walls and partly to the contraction of cicatrices. The cicatrices left by ulcers, etc., often cause stenosis of the rectum and finally of the vagina. In addition to the injurious effects already enumerated there are others, pressure on a sunken or inflamed ovary, tumor, or tube, cystitis with strangury, tenesmus, etc., caused by large irritating pessaries, exacerbations of old parametritic and perimetritic processes, etc.

Eight cases of death due to pessaries are recorded as follows:

Death from peritonitis following incision of the recto-vaginal wall for the extraction of an imbedded pessary⁸.

Death from exhaustion after the extraction of an incarcerated pessary⁹.

Death from sepsis caused by ulceration and perforation of rectum, after an operation for the removal of the pessary had been refused¹⁰.

Death from exacerbation of an old pelvic peritonitis¹¹.

Death in two cases from uremia following the extraction of a pessary in cases of purulent septic parametritis^{12 13}.

Death from pyometra in consequence of atresia of os uteri caused by a pessary¹⁴.

Death from ulcerative parametritis and exhaustion¹⁵.

The social position of the victims of retained pessaries varied from the highest to the lowest. Their ages, at the time of extraction of the pessary, were from ninety to nineteen years. The ages in many of the recorded cases are not given. One woman was ninety, eighteen were between seventy and eighty, nineteen were between sixty and seventy, twenty-one between fifty and sixty years old. The length of time the pessary was retained varies considerably. In the case of the woman ninety years of age, the pessary has been retained forty-five years.²⁵ In two instances it remained

forty years;²⁰ four times it was retained thirty-five years, once thirty-three years, three times thirty years, twelve times from twenty to twenty-seven years, and so on; the shortest time it caused serious inconvenience was only a few weeks.

The form of pessary differed greatly. In many cases it is not mentioned. The fashion in pessaries has changed more frequently than the seasons. Forty-one times some form of stem pessary is reported as the cause of serious injury. Almost every variety of pessary has been responsible for some traumatism. The injury has, however, been caused more often from want of care, forgetfulness, disproportionate size and improper adjustment than from any special form or variety.

The material of which the pessary is made has apparently had no etiological relation to the nature or extent of the injury. As a matter of interest it may be stated that the materials reported are cotton, lint, linen, porcelain, oakum, wax, gum elastic, whalebone, wire of iron, gold or silver, nickel, tin, aluminum, copper, lead, hard rubber, glass, wood, cork and celluloid.

The injurious effects of pessaries are not alone occasioned by their presence. Various accidents have occurred in the attempts that have been made at their removal. The pessaries themselves have sometimes become corroded by the altered vaginal secretion so that new mechanical dangers have been added to those due to the prolonged presence of a foreign body. In a case reported by Morand the pessary was found perforated in several places apparently from the effects of the acid matters which were secreted by the vagina. These irregular openings were filled with portions of the vaginal mucous membrane, which had become elongated and swollen in the thickness of the pessary and had formed hooded excrescences retaining putrid matter in the cavity of the pessary.¹⁶ Occasionally more than ordinary difficulty is experienced in the removal of pessaries from the vagina and numberless accidents occur. Mayer in extracting a bullet-shaped pessary adhering closely to the vagina bored into it with a wooden screw and tore away large pieces of the vagina.¹⁷

In cases of imbedded pessaries there is often exceptional difficulty. In one case systematic dilatation of the vagina by means of sponge tents was necessary for several days in order to ascertain the presence of the pessary. Great difficulty was experienced in its extraction.¹⁸ In five cases there was laceration and tearing of the vaginal wall. In removing a lindenwood pessary a portion of the anterior vaginal wall was lacerated so that

a piece of mucous membrane two inches in length was partly torn off and fell away on the sixth day from gangrene.¹⁹ On another occasion the posterior vaginal wall was perforated into the peritoneal cavity.²⁰

Janin found in one case the upper part of a pessary bent backward and more than half the staff penetrating the rectum, in which it could be distinctly felt. The feces escaped by the vagina. Incisions were made with a bistoury in order to disengage the pessary from the fragments which held it. The feces gradually resumed their ordinary course and at the end of a month only a small fistula remained. The half of the staff which was in the rectum was covered with irregularities of a black color, very fetid and covered with shining crystals. The portion lodged in a fold of the vagina was covered with a stony incrustation which had at its lower part a slightly convex facet an inch in length.²¹

The treatment of neglected pessaries consists in their removal from the vagina or the neighboring viscera or tissues in which they may have become imbedded or displaced. Fortunately in most cases this is a comparatively easy matter. The finger often suffices to dislodge and remove the pessary, which may conveniently be steadied, if necessary, by a bullet or vulcellum forceps. Care must be taken to avoid undue laceration of the vaginal tissues. In some instances it will be advisable to separate the adhesions that have formed about the pessary, thoroughly disinfect the parts by antiseptic douches and after an interval of several days when the pessary has become detached and freely movable, proceed to its removal. Occasionally a pessary will have to be extracted by fragmentation. Holmes speaks of a case where a metallic pessary was so firmly imbedded that it became necessary to incise the perineum in order to facilitate its extraction.²² In a similar case Lisfranc made a posterior vulval incision.

The adhesions present will often necessitate the division of the pessary by means of bone forceps before its removal becomes possible. Occasionally a metacarpal saw may be used with advantage. The pessary will perhaps have to be held by a forceps and the vagina widely dilated by some form of Sims' specula. Chrobak and v. Ott in extracting ring pessaries made use of the galvanocaustic platinum wire snare, which Neugebauer regards as an excellent way, safer than any other.²³ In other cases incisions of the soft parts of the patient will be necessary. The injuries inflicted will, of course, be as limited as possible and will be antiseptically repaired as far as practicable, but it must be remembered that the

history of all cases shows the necessity of removing the pessary, if the life of the patient is to be saved.

A pessary lying in the vagina has been observed to be held firmly by a cystocele. In two cases where the extremely inverted anterior vaginal wall presented itself in the rima vulvae a rubber ball pessary was noticed in the upper portion of the vagina. In cases of this character and in cases of perforation of the rectum and especially the subvaginal cellular tissue and peritoneal cavity, the greatest care must be exercised. By carefully reducing by means of retractors the cystocele or rectocele present, the pessary can usually be reached and systematic measures instituted for its removal.

In case abscesses have formed in the tissues surrounding the vagina, the treatment of the impacted pessary will consist not only of its removal but in the treatment of the dangerous concomitants. I cannot in this connection discuss the subject of pelvic suppuration. I must, however, be allowed to insist upon the importance of free and absolute drainage secured at any cost by any means, even by the removal of the uterus and adnexa in case other means are inefficient.

The consideration of my abstract of more than 300 cases of the injurious effects of pessaries suggests naturally the inquiry as to the advisability of the use of pessaries in general. Personally I can make answer very readily. My experience with pessaries during the past ten years has consisted solely in their removal. Some form of the Alexander operation, the operations of colporrhaphy, perineorrhaphy, trachelorrhaphy, hysterorrhaphy and in a few cases hysterectomy, singly or combined, according to the requirements of each individual case, have sufficed in my experience and that of my assistants to control all displacements of the uterus, as well as all inconveniences occasioned by them.

I do not, however, presume dogmatically to assert that pessaries should be banished as a relic of barbarism. I cannot agree with Fritsch that the sale of pessaries should be restricted like that of poisons. I consider it unwise to discard the use of pessaries altogether. There are many cases where the judicious use of a pessary makes the woman feel "like newborn" as Neugebauer graphically expresses it. Moreover, every physician is not accustomed to do plastic gynecological operations, nor can the patient in every case submit to operative procedures. The physician who inserts a pessary should, however, realize its powers for evil as well as for good. He should insist on frequent examination; he should

be on the alert for the possibilities; he should remember that deviations of the uterus have not the importance that was attached to them twenty years ago; he should remember that the inflammatory conditions of the tubes and ovaries frequently cause a prolapse of these organs into Douglas' cul-de-sac, and that eminent gynecologists to-day do not hesitate to assert that cases of so-called retroflexions of the uterus are all of them really tubes or ovaries often bound down by adhesions behind the uterus. These facts should be remembered by every practitioner and he should further understand that a pessary, if suitably applied, causes relief and not distress. In case the patient complains of sensations of pressure or of other inconveniences, the possibility of incorrect adjustment or improper application should not be forgotten. Above all things the patient should be instructed in the care of the pessary.

It should be remembered that she carries in her vagina a foreign body which requires attention. At suitable intervals it should be removed, cleansed and disinfected, and the opportunity should be utilized to ascertain the benefits or injuries occasioned by its use. The vagina should be regularly and systematically douched, not alone to disinfect the parts, but also to remove the excess of secretion resulting from the presence of the pessary. These measures are easily carried out in private practice. In hospital and especially in dispensary practice, they are impracticable, as a rule, and for this reason, if for no other, the pessary should, in my opinion, be rarely advised in such cases.

¹ Franz Ludwig Neugebauer, *Archiv fuer Gynekologie*, Heft iii., Band xliii., p. 373.

² Hamilton, *Practical observations on various subjects of midwifery*. Part I., Edinburgh, 1836.

³ Carl Mayer, "Beitrag zur Kenntniss und Behandlung des Prolapsus uteri et vaginæ." *Verhandlungen der Gesellschaft fuer Geburtshuelfe in Berlin*, 1846, iii., Jahrgang, S., 123, 137. Berlin, 1848.

⁴ Bayard, v., *Poulet's Treatise on Foreign Bodies, etc.*, p. 190.

⁵ Poulet, *A Treatise on Foreign Bodies in Surgical Practice*, p. 194.

⁶ Bérard, v., Poulet, loc. cit., p. 194.

⁷ Deneux, *Journ. gén. de méd.*, 1822, T., lxxviii., p. 197.

⁸ Lisfranc, *Maladies de l'utérus*, *Leçons de Lisfranc par Pauly*, p. 528, Paris, 1836.

⁹ Henkel, *Neue medicinische und chirurgische Anmerkungen*, Berlin, 1772.

¹⁰ Maercker, *Hufeland's Journal der praktischen Heilkunde*, Bd., xvi., Hft. 4., Berlin, 1803.

¹¹ Bernutz and Goupil, *Clinique méd. sur les maladies des femmes*, T. ii., p. 721, Paris, 1862.

- ¹³ Kelly, Med. News, p. 430, Philadelphia, 1884.
- ¹³ Gillette, Bull. de la Soc. anatom. de Paris, 1884
- ¹⁴ Robin, Gaz. méd. de Paris, 1885, p. 174.
- ¹⁵ Jawdyski, v., Neugebauer loc. cit., p. 410.
- ¹⁶ Morand, Anc. Acad. de Chirurgie 1878, p. 421, obs. xi.
- ¹⁷ August Mayer, Monatsschrift fuer Geburtsh. und Frauenkrankheiten, 1858, Bd. xii., S. 1-42.
- ¹⁸ Clay, Med. Times, 1844, No. 231. (Cf. Neue Zeitschrift fuer Geburtskunde Bd. xxii., S. 301, Berlin, 1847.)
- ¹⁹ Rainer, Gemeinsame deutsche Zeitschrift fuer Geb., 1828., Bd. ii. S., 127.
- ²⁰ Zweifel, Vorlesungen ueber klinische Gynekologie, Berlin, 1892, 14. Vorlesung. S., 390.
- ²¹ Janin, Journ. gén. de Méd., 1822., T. lxxviii., p. 200.
- ²² Holmes, London Med. Gazette, 1854.
- ²³ Chrobak and v. Ott., Die Untersuchung der weiblichen Genitalien, S., 213, Stuttgart, 1870.
- ²⁴ Neugebauer, loc. cit., p. 432.
- ²⁵ Bjoerkmann, Inaugural Dissertations, S. ii. of Josef Diefenbach.
- ²⁶ Rousset, De l'enfantement Césarien, p. 176, 1581.

613 TACOMA BUILDING.

A METHOD TO FACILITATE THE EARLY DIAGNOSIS OF DIPHTHERIA.

W. K. JAKUES, M. D., CHICAGO.

The diagnosis of diphtheria has been uncertain until bacteriology came to our assistance. Whether or not we accept the Klebs-Loeffler bacillus as the cause of diphtheria, it is now certain that it is the cause of the mortality; hence the first and most important step in diagnosis is to ascertain beyond the question of a doubt if this bacillus be present. The Klebs-Loeffler bacilli may be present in all forms and grades of inflamed throats; it may be present in fibrinous exudate without producing membrane, and when present in a mild form is the more dangerous because of the lack of the proper precautions and exposure to further contagion.

Bacteriological examinations should be made in all throat inflammations when diphtheria is epidemic or endemic. In order that this work may become practicable, it must be reduced to a convenience which shall recommend itself to all practitioners. The chief disadvantage of the method adopted by the New York Health Department is the time consumed before a positive diagnosis can be obtained, and the inconveniences attendant upon the transmission of the inoculations.

The method which I present is designed to reduce the length of time to the minimum hours for making a culture, which we will place at twelve. If a physician makes his own microscopical examination, a positive diagnosis can be made in that time; if he is not prepared to do this, the culture he has made may be sent to the health department and a reply received in a very short time. Instead of the large test tube and clumsy wooden box furnished by the health department, I have a small test tube of thick glass, about one centimeter in diameter and five in length, containing a small quantity of serum prepared in the usual way. This tube is enclosed and firmly fastened in an upright position in a small muslin bag, to which is attached at each of the four corners, tapes half a yard long. This constitutes the necessary outfit, small of itself, and easily carried. My method of procedure is as follows: When called to diagnose a case of sore throat, I whittle, with an aseptic knife, a pine stick, several of which may be carried in the pencil pocket, shaping the end flat and smooth like a spatula. With this I obtain a little of the mucus from the membrane, or a portion of the membrane if possible, and wipe the surface of the serum with this exudate. I then replace the plug of cotton, with which the tube is supplied, burn the stick, and insert the tube in the little muslin bag, covering it securely with the flap that it may not become dislodged. The bag is placed under the axilla of the patient, the two upper bands meeting over the opposite shoulder, and the two lower around the body, under the opposite arm. The body provides the necessary unvarying temperature for incubation.

At the next call my culture is ready for examination which I make as soon as I can reach my office. Even with the naked eye, the little pin-head colonies may be seen on the surface of the serum, but with a one-twelfth objective oil emersion, my diagnosis is positive. Diagnosis is based upon, first, the rapid growth and development of the germ; second, their characteristic arrangement and shape.

The utility of any method depends largely upon its simplicity and convenience. The time consumed in taking specimens to and from the laboratory is quite a drawback, especially where this service is not performed by the city. The method I recommend would be of especial advantage to physicians in smaller towns who have not the services of a city laboratory, and it is of equal advantage to the city physician who desires a speedy diagnosis. So much depends upon the presence of the Klebs-Loeffler bacillus that a means of

detecting its presence should be in the hands of every physician who has the responsibility of a case.

Not only should he be able to make a speedy diagnosis when first called, but he should be sure that the bacilli has disappeared before he dismisses the case. It may be necessary to make a number of cultures. Bacilli have been known to remain in the throat for eight weeks after the membrane has disappeared; it is these cases that spread the disease.

With our present knowledge of diphtheria, a physician's responsibility to the public, his patient and family, does not end until he is positive that the bacilli have disappeared.

I tried this method of incubation in a case of primary laryngeal stenosis which I was called to intube by Drs. Kuh and Mercer. The city bacteriologist was out of the city and no culture had been made of the case, although Dr. Kuh was so positive it was diphtheria that at 5 P. M. he had administered a dose of antitoxin. I inoculated my tube of serum at 10 P. M., placed it under my axilla at 11 P. M., and at 11 A. M. the following day obtained a beautiful culture of the Klebs-Loeffler bacilli. Here was a saving of at least twenty-four hours over the New York method.

The importance of a bacteriological examination cannot be overestimated. A large proportion of the deaths from diphtheria are caused by incorrect diagnosis and preventable contagion. A positive diagnosis is within the reach of every physician in Chicago, and if the mortality of diphtheria is to be decreased, bacteriological examination, which is the first and most important factor, must form the basis of treatment.

I wish to acknowledge my indebtedness to Dr. Gehrmann, the city bacteriologist, for his substantial encouragement and assistance in furnishing me materials for experiments.

4300 COTTAGE GROVE AVE.

THE
CHICAGO MEDICAL RECORDER.

Journal of the Chicago Medical Society.

Drs. EDMUND J. DOERING, JOHN A. ROBISON, ARCHIBALD CHURCH.
Committee on Publication.

Dr. ARCHIBALD CHURCH, Editor for the Committee.

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THE CHICAGO MEDICAL SOCIETY.

A regular meeting was held in Commandery Hall, November 5, 1894.

President SENN in the chair.

The minutes of the preceding meeting were read and approved.

The applications of Drs. H. M. Martin, W. P. Goodsmith, H. B. Carriel, J. W. Van Derslice and A. C. Girard were read and referred to the committee on membership.

Dr. J. H. COULTER read a paper, see page 384, on

THE DIAGNOSIS OF PHARYNGEAL ULCERATIONS.

Dr. NORVAL H. PIERCE: It has never been my fortune to see a case of this sort. I do not know that there is any trustworthy authority for supposing that a simple ulceration of the pharynx lasts nine months. That a simple ulceration does occur in the pharynx in the course of so-called catarrhal or streptococcus pharyngitis, there can be no doubt, but such an ulceration is extremely shallow, consisting of a loss of only the most superficial layers of epithelium without any induration, the edges are not elevated though the ulcer is very well defined and is usually surrounded by a nimbus of highly injected mucous membrane, otherwise healthy. These ulcers heal readily within a week under any

treatment and leave no scars. I have seen a number of ulcers of this sort particularly among the Russian Jews who live amidst the most unhygienic surroundings, who are always anemic and who present anomalies of almost every type of disease. A condition which I have seen, however, that is somewhat analogous to the one Dr. Coulter has reported, is that of pharyngitis herpetica. I have seen herpes of the pharynx last over two months, and this in spite of all manner of treatment. But the history was entirely clear. I saw the case at the outset when there were only a few scattered vesicles which gradually increased in number until they became confluent and presented an almost classical picture of diphtheria. On removing the secretions the surface beneath was found to be granular and with a strong tendency to bleed.

I cannot say that I believe these two cases of Dr. Coulter's were simple ulcerations of the pharynx. That the doctor or his assistant could not find the bacillus tuberculosis is not surprising, because in many tuberculous ulcerations the bacillus is extremely hard to find, on account of their scarcity, or because of the greater number concerned in the tuberculous process being still in the spore stage. I would suggest in all these cases, as a better means of establishing a diagnosis, that we inject the scraping from such an ulcer into the anterior chamber of the eye of a rabbit, or the peritoneal cavity of a guinea pig. It is surprising that an ulceration that lasted so long and penetrated to such depths as he avers, did not present marked cicatrices. That there was no perforation is not to be wondered at, because many ulcerations of the pharynx, even syphilitic in nature, do not have a tendency to perforate. As to glandular enlargement, I should say that in some cases of syphilitic ulceration of the pharynx there is only slight, or no unusual glandular enlargement and the same may be said of tuberculosis.

Dr. W. L. BAUM: I am interested in the subject of pharyngeal ulceration from the fact that to most syphilographers cases are sent without any history of syphilis; and yet the individuals who send these cases claim that they must be due to syphilis because they do not get well under any other, and not very rapidly under the antisyphilitic treatment. There are many cases of drug eruptions ending in ulcerations. A case sent to me about a year ago was an individual who had periodical attacks of inflammatory rheumatism. He had been given large doses of the salicylates, and every time he was given this remedy he had an erythematous eruption which continued for some time and lead to ulcerations, and he had this condition not only of the skin, but also of the

pharynx. In the posterior pharynx there was a large ulcer almost the size of a quarter which persisted some three months. I did not try any antisyphilitic treatment because the history was very clear. Sometimes toxins are formed which produce upon the skin or mucous membrane peculiar ulcers which never have been classified properly. I do not know of any work on the subject which gives a clear history of the etiology of these cases.

I was greatly surprised to find so much stress laid upon antisyphilitic treatment. Because a case gets well under iodide of potassium or the mercurials it does not necessarily follow that it should be of a syphilitic nature, and yet it seems that all the authorities cited by Dr. Coulter speak of giving antisyphilitic treatment as if antispecific treatment could be used as a means of diagnosis. If there are no other symptoms present we have no right thus to make a diagnosis of syphilis. I do not believe there is ever a case of syphilitic ulceration of the throat without glandular enlargement; that is one of the most positive evidences of syphilis in the individual. We have conditions of traumatism in the throat, which in some individuals is likely to be followed by ulceration persisting for a considerable time. I agree with Dr. Coulter that there are cases of ulceration of the pharynx of a non-syphilitic and nontubercular character.

Dr. E. FLETCHER INGALS: I believe the tendency in these cases is not to make a mistake in calling them syphilitic, but rather to err in diagnosing them as simple or catarrhal ulcers. Catarrhal ulcers of the throat are very rare indeed. I have seen a number of cases that would be classified as scrofulous, but the exact cause of ulceration of this character we do not know, it may possibly be inherited syphilis or tuberculosis; these cases occur in children, who generally get well after a time, under proper treatment. I have also seen a number of cases of aphthous or herpetic ulceration of the throat of short duration, but I have never seen an ulceration of the throat continuing several months, similar to the cases presented in the paper that was not either syphilitic, lupoid, tubercular, or malignant.

Dr. N. SENN: When we speak of a simple ulcer of the pharynx we must take into consideration the primary factor. We had a classical paper on this subject by Virchow some four years ago, in which he placed special stress upon the well-known clinical fact that no mucous membrane is immune to this ulceration. What is described as a simple ulcer seems to be a catarrhal ulceration characterized by the ulcer being superficial as a rule and leaving no

scar tissue after healing. A superficial ulcer formed simply of the structure of the mucous membrane with no deeper lesions undergoes healing by granulation without leaving a visible scar. This is one of the features of catarrhal ulceration. The next question arises in regard to the primary etiological factor. What is catarrhal inflammation? In the sense it is used now it may be the result of a streptococcus, a staphylococcus, or leptothrix infection; in fact, any microbe that inhabits the mucous membrane reproduces itself and is liable to maintain the catarrhal inflammation, one of the final results of the inflammation being ulceration.

Dr. J. H. COULTER, in closing the discussion, said: I thank the President for referring to the paper of Virchow, it had escaped my attention. The sum and substance of the opinions adduced in the paper have been given exactly by the chairman. The point of the paper is simply this: There is such a condition possible, and further if the ulceration is specific, that is tubercular or syphilitic, there must be some corroborative evidence present, some one of the symptoms of syphilis in some stage, all of which are absent in these cases, or else it should be demonstrable by the microscope that tuberculosis or lupus is present.

Dr. Pierce referred to the length of time necessary for one of the ulcers in healing. If that ulcer had been on a limb, in the uterus or elsewhere, and had taken six or eight months to heal, it would not have been considered a matter of surprise, then why should it be any more surprising since the ulcer was in the pharynx? I am satisfied the repair of the ulcer was not hastened, if indeed it was not greatly retarded by the so-called antisiphilitic treatment. We know there is at times great difficulty in establishing a healthy granulation in much more accessible and less irritated points than the pharynx.

PRESENTATION OF A CASE.

Dr. CARL BECK presented a patient in whom the cecum had been extirpated for carcinoma and resection made with the Murphy button. The patient left the hospital in three weeks after the operation, which was done on the 31st of August, and has gained about thirty pounds since. The button was passed on the eighteenth day.

Papers on the general subject of

THE DIAGNOSIS AND TREATMENT OF COMPLICATIONS OF TYPHOID FEVER

were read as follows: 1. Nervous System, Dr. H. N. Moyer, page

379. 2. Lungs, Dr. E. F. Ingals, page 294. 3. Heart, Dr. Frank Billings, page 292. 4. Bones and Joints, Dr. Carl Beck, page 300. 5. Female Organs of Generation, Dr. Marie Mergler, page 389.

Dr. W. L. BAUM: I hardly feel prepared to say anything in regard to skin eruptions present as I do not see many cases of typhoid fever, but in a number of cases where I have been called in consultations with general practitioners I have seen some curious forms of skin eruption. There are some erythematous conditions frequently met with, but which are due not so much to a high temperature as to the presence of toxins. We find almost identical conditions in most of the other toxine diseases, and I think most of the so-called complications of typhoid fever, so far as the skin manifestations are concerned, are due to predisposing factors which bring about these conditions.

The ordinary skin manifestations of typhoid fever being one of the important diagnostic factors are too well known to need any explanation here.

Dr. JAMES A. LYDSTON: As has been outlined this evening the nervous system, as a whole, is very prone to become involved in typhoid fever and its complications. I have always looked upon the eyes as a part of the nervous mechanism, being nothing more nor less than a prolonged expansion of the optic nerves, consequently it would not be unreasonable to presume, if indeed medical experience did not bear me out in the statement, that in the period of sequelae, the eyes are very prone to become affected as a result of typhoid fever. I say in the period of sequelae, because during the earlier or prodromal manifestations, the eyes are very seldom examined by the oculist, consequently it is only during the latter stages of the disease, or even after the disease has expended its violence and the patient has passed into convalescence, that the eyes become the subject of examination by the oculist, and he finds under such circumstances that the corneas are particularly likely to manifest pathological changes. For example we have the various forms of keratitis and several forms of corneal ulcerations resulting from typhoid fever. In addition to corneal ulcerations, softening of this structure ensues, and as the result of this softening, after the eye has passed into a period of usefulness following the disease, we have expansion or distention of the eyeball constituting conical cornea.

The sclerotic coat, is likewise susceptible to various changes. Thus scleritis, both deep and superficial in character supervenes, and if unchecked may eventuate in staphylomatous bulgings of the

eyeball. Having disposed of the extra ocular tunics, it may be well to direct attention to the interior, and we find opacities of the aqueous and the vitreous humors consequent upon wasting typhoid. These opacities clear up after the individual has passed into the period of full convalescence. Lenticular opacities are also to be noted as a sequel of typhoid, possibly arising from nutritive disturbance in the lens during high pyrexia. Then again, following the optic track still further back, we find that the optic nerves in very severe types of typhoid fever become implicated and we have optic neuritis with atrophic changes resulting. This may be the direct result of the typhoid state or it may be due to ptomaines that are generated in the system during the stage of the fever. However that may be, the disease is found in a sufficient number of cases to warrant us in accepting it as a sequel of typhoid fever. Various forms of retinitis also occur, the retina being simply an expansion of the optic nerve, it is not unreasonable to presume that if the nerves proper become involved, we should have retinitis as a sequel of typhoid fever. I was somewhat surprised that the subject of albuminuria was not referred to as a sequel of typhoid fever. It is not an uncommon occurrence and the ophthalmologist is sometimes able to determine its presence ophthalmoscopically, by defining retinitis albuminurica, but unfortunately this discovery is not timely enough to be of much benefit, so far as treatment is concerned, as those cases sufficiently grave to induce retinitis albuminurica usually die within twelve to eighteen months at the latest. Iritis, which is sometimes styled idiopathic, but which is evidently neurotic in character, sometimes follows typhoid fever.

Having disposed of what might properly be termed the diseases of the intraocular structures, we note that the various muscular anomalies are acceptable sequences of typhoid. The ocular muscles are prone to be involved as the result of any wasting disease, and it is not surprising that the varied types of muscular insufficiency should follow typhoid fever. Again as we have muscular defects, so we have accommodative defects, rightly grouped under the heading accommodative asthenopia, and this I believe to be one of the most common results of typhoid fever. The ciliary muscle is known to preside over the accommodative mechanism of the eye and any debilitating disease which reacts injuriously upon the general muscular system, will naturally exhaust the accommodative muscle. So we find

various defects so far as the accommodative apparatus is concerned. Thus an individual with a latent hyperopia, by straining his accommodative muscle is capable of masking the same during a state of normal health, but once subject him to the exhausting effects of typhoid fever, diphtheria, scarlatina, measles, etc., and his refractive error becomes apparent, and he is no longer able to disguise its presence without preceptible effort, which in turn constitutes accommodative asthenopia. So too, we have as previously mentioned asthenopia muscularis, which is explicable in a like manner. These are all the sequelae that present themselves to my mind as the results directly of typhoid fever, itself, or its complications.

Dr. N. P. PEARSON: Forty-five years ago I was a military surgeon in Denmark, and I saw typhoid complicated with parotitis several times, and every time it was a serious complication. Another complication has been touched on here, that is albuminuria. It may be present before the typhoid fever, it may be temporary or continue, and I think we should closely examine the urine during this disease. It is well enough to speak about all these complications, but I think the whole world knows that an ounce of prevention is worth more than a pound of cure. We are trying to find an antitoxine, and while we have found it we have not found one for every case. I experimented a good deal in the school of Rademacher. When I meet a disease I know I must find the basic lesion and then I can speak about my diagnosis. When I am called to a case of typhoid fever, and having made this diagnosis I proceed further, for if there is plenty of bile in the urine and none in the stools we know there must be something the matter in the bile duct, and you would be astonished to see the effect of *nux vomica* in small doses. Here it acts just like *santal oil* in the urethra, and that may be a remedy for a whole season, but another season may come when there is lack of bile both in the stools and in the urine, and for this we have antitoxine, etc. It seems that the primitive seat is somewhere in the liver, and the infection hence extends to the intestines, there producing the well-known toxic catarrh.

Niemeyer called Rademacher "that wonderful genius with a clear perception of the errors and failings of traditional therapeutics." If he had known bacteriology, as we now do, he would have grappled it with both hands and left us a more durable text.

Dr. H. T. PATRICK: Hysteria following typhoid fever is not quite so rare as Dr. Moyer has indicated. Several have referred to

cases, and I have seen one typical case myself. I would like to mention a class of mild cases in which the head symptoms are dominant so that one is led to make a diagnosis of cerebral meningitis on the one hand, and on the other of pure psychosis. In the latter instance a neurotic psychic hereditary will generally be found.

Dr. A. H. TAGERT : We have only heard two or three speak of the typhoid bacillus in connection with other complications. The fact that the typhoid bacillus is found in the skin, the mucous membrane, the meninges of the brain, the mucous membrane of the air passages, in the intestines, where it is particularly found in the glands, not multiplying very much on the intestinal surface, would indicate that many of the sequela of typhoid fever, are the result of some other microbe than the typhoid bacillus.

Dr. J. B. HERRICK : My experience with typhoid fever embraces about a thousand cases, largely in hospitals. I have seen but one case of hysteria, which was in private practice and in a male.

Pleurisy is a complication that occurs in typhoid rarely during the height of the disease, oftener during convalescence, and this may account for an otherwise unexplained continuance of high temperature. I have seen pleurisy in two cases but have never seen a case of suppurative pleurisy consequent on typhoid fever. Bronchitis is so common that it may be called nothing but a symptom of the disease ; in other cases it becomes largely a complication, and in many of these instances I believe it is due to faulty prophylaxis. This bronchitis may often be prevented from becoming a serious complication by the expedient of frequent change of position of the patient, by inducing the patient to take frequent inhalations, by keeping the mouth in a perfectly clean condition, as nearly as this is possible. If the mouth is foul, the air passing through it into the bronchi and alveoli, charged with numerous bacteria may easily give rise to a serious form of bronchitis or of inhalation pneumonia. It is in those cases also where the mouth is not properly attended to, that we oftenest have inflammation of the parotid glands.

It is certainly difficult in many cases to differentiate between acute miliary tuberculosis and typhoid. In one instance I confess to having put a patient in one of the wards of the County Hospital down at the lower end of the room, because after watching him two or three weeks, it was the unanimous verdict of the physicians that the patient was suffering from miliary tuberculosis. The baths

were stopped, he was allowed a liberal diet and we expected him to die, but in a few weeks he was well. I have seen other cases where the diagnosis was difficult on account of the prominence of bronchial symptoms. I have met with but two cases I could positively recognize as acute endocarditis in typhoid. The slowness of the pulse, which Dr. Billings referred to, is, I am sure, of great value from a diagnostic and also from a prognostic standpoint. I have also noticed this fact, that during convalescence a patient will have, while in bed, a pulse of sixty or seventy or even less, and upon rising from bed there will be a pulse of 120 to 130 or 140, without any symptoms that would lead to the diagnosis of a complication, and this will continue several days. This point I think should be noted, and where we find the heart so irritable and the pulse flying up so soon after the patient first leaves the bed he should be warned against overexertion. As to eye symptoms, I have never seen a case of typhoid fever in which I deemed it necessary to consult an oculist or to write a prescription for an eye complication even though the cases were treated without special reference to prophylaxis as regards the eye.

Dr. A. H. BURR: I wish to report a complication that occurred recently in my service in the Provident Hospital, following close upon convalescence in a typical typhoid case. A young woman of twenty-four, a multipara, developed a severe case of mastitis. I have not been able to find any record of such a complication due to typhoid. Where it occurs without the presence of fever we have some explainable reason for it, as in ordinary mastitis arising from excoriated nipples in a nursing mother or in parotiditis by metastasis, but in this case there was no exciting cause to explain the appearance of the mastitis, which required active treatment with embrocations and bandaging, and was accompanied by a rising temperature after the temperature had become normal from the typhoid condition, and with much swelling and pain. It did not progress to suppuration but was overcome by the treatment mentioned.

I have been interested in the discussion, but disappointed when it came to the topic of treatment. I would refer to the paper read by Dr. Moyer in which he suggests that the evil effects upon the nervous system are due to the toxines, as manifested in the urine, and he states that no studies seem to have been directed to this feature. I wish to refer to the demonstrations of Roque and Weil, of Paris, which are recorded in the Handbook of Medical Practice for 1893, in which they show that with the Brandt baths the toxicity

of the urine is increased sixfold. Where the cases were treated on the expectant plan the toxicity of the urine was doubled and where the artificial antipyretics were used the toxicity was normal or even less. This shows the superior influence of the Brandt baths upon the elimination of the toxic principles through the kidneys. Dr. Billings placed this treatment last and almost last, apparently, when to my mind it should be first, last and all the time. I cannot agree with Dr. Graham that the Brandt method seems to favor hemorrhage and perforations of the bowel; this cannot be established from the observations and records already made. While he acknowledges that Osler's results show a diminished mortality, he seems to think that what mortality there is has perhaps been brought about through the use of the Brandt method, because in this mortality list there seems to be a little larger proportion of hemorrhages and perforations. The general result, however, is in favor of the Brandt method and Osler is emphatic in his endorsement of it.

We have in typhoid a profound intoxication which leads to all the complications. Such an authority as Winternitz, of Vienna, who last winter gave a very interesting discussion of this subject, showed from his own demonstrations that the full cold bath, or almost complete application of cold water to the surface, does three important things, it increases the number of leucocytes in the blood, it increases largely the percentage of hemoglobin, and it increases its specific gravity, showing also increased alkalinity. This alkalinity favors the growth of the leucocytes, and since our knowledge of infection by microorganisms we have learned to regard these cells as in a certain sense scavengers that attack the toxins and destroy them. I agree with the opinion quoted from Dr. Quine that any interference with what he terms the normal temperature of typhoid fever leads to a prolongation of the disease and to complications. I think that may be practically and eminently true when the artificial antipyretics are used, but if you reduce the temperature by the elimination of toxic materials you are going upon a rational ground of treatment, and that the Brandt method does this above all others seems to be incontrovertible. In a recent demonstration by Thayer at Johns Hopkins he proved that blood taken from the ear of a patient immediately after a Brandt bath showed three times the number of leucocytes as blood taken from the ear of the same person immediately preceding the Brandt bath. This demonstrates the wonderful influence of the cold bath in putting the blood in a less toxic condition and in favoring the

destruction of these toxins whether in the fluids, tissues or firm structures of the body.

I wish in conclusion to quote a few words from W. Gilman Thompson, of the New York Hospital. In a recent paper he says :

"One scarcely ever sees a typical typhoid condition among patients who have been systematically tubbed; delirium is the decided exception in the ward, all nervous symptoms are lessened, the tongue is moist and clean, the digestion and appetite are good, tympanitis is not present, the skin is active and healthy, the pulse is full and regular and the whole clinical aspect of the case is completely changed."

Dr. J. J. M. ANGEAR: We all know that leucocytes stick closely to the walls of the vessels, they are the last to be driven out, and if we have placed a patient in a cold bath we have driven a large amount of blood from the surface to the inner portions of the body. Now, if we were to puncture an ear we would expect that there would be a larger amount of leucocytes because we have driven away the red corpuscles, and not the white. I think we will have to seek further for evidence of that great benefit. I do not see how these leucocytes can be created in so short a time. The fact of taking the patient out of the bath, examining the blood, and finding none there, is *prima facie* evidence that they have not had time to multiply. We have reason to believe that some microbes can multiply in twenty minutes, but I do not understand that in these cases even that length of time is given.

As scientific theorists we must bear in mind that we are talking about the complications of fevers, and not of typhoid alone. As an illustration: in Dr. Moyer's paper he speaks of delirium and insanity. Now, anything that will lower the standard of health will invite insanity. I am satisfied if we take the acid treatment of Chambers, follow it up with milk and give the patients an abundance of water, we will not have delirium. If you give an abundance of water and milk and follow it up with the acid, you will not need to have anything to clean the mouth, it will be just as clean as when in a normal condition. When we have delirium in typhoid patients it is marked by a peculiar idea that they are away from home, although they may be in their own bedroom, surrounded by their families, and sometimes determination to go home is so strong that the windows must be barred, the doors shut, and the patient not left alone for a minute.

Dr. H. M. MOYER, in closing the discussion, said: I believe

there was a reference to the neuroses, hysteria, neurasthenia and epilepsy. I do not say by any means that they do not occur, but they are relatively infrequent. Aside from the mental diseases the portion of the nervous system that seems to be attacked most frequently is the motor peripheral nerves and their termination in the muscles. As to the relation of mental disease to typhoid, I would certainly agree with Dr. Angear that almost anything can cause mental disease.

On motion by Dr. Graham, a committee was appointed to address the State Board of Health and to urge the Board to undertake the propagation of vaccine virus. Drs. Graham, Reynolds and Hoag were appointed as such committee.

There were 120 members and visitors in attendance.

On motion, the Society adjourned.

JUNIUS C. HOAG, Secretary.

A regular meeting was held November 19th, in Commandery Hall.

President SENN in the chair.

The minutes of the preceding meeting were read and approved.

The committee on membership reported favorably on the applications of Drs. A. C. Girard, H. M. Martin, R. W. Sievers, W. P. Goodsmith, H. B. Carriel, and J. W. Van Derslice, and on motion, the Secretary cast the ballot of the society for their election.

Dr. N. S. DAVIS, Jr., read a paper, see page 367, entitled

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ANIMAL EXTRACTS.

Dr. J. B. HERRICK: The question treated by Dr. Davis tonight is a very timely one, and the influence of his paper will be for good. I am sure there are many cases, particularly of myxedema, in our midst that are unrecognized, especially cases of so-called congenital myxedema or cretinism. I must confess that I have been somewhat prejudiced against the use of animal extracts. I have never yet been able to convince myself that many of these animal extracts possess half the virtues attributed to them. There is a radical difference between the use of the thyroid extract on the one hand, and the use of the extract of the kidney, or even of the testicle, on the other hand. We are not, perhaps, clear in our minds as to what is the function of the thyroid gland, but that it has a function cannot be disputed. When it is removed com-

pletely by the surgeon we see there is a great constitutional, and not in any sense local, change in the human system, and we call the condition thus induced myxedema. Let the extract from an animal's thyroid be given to the patient, and this condition disappears. There is a difference between the extract from such a gland as the thyroid and the extract from the kidney, properly an organ of excretion, or even from the testicle, an organ that is largely local in its action. It does not seem as rational to employ an extract of the kidney or the testicle as the extract of the thyroid gland. While there may be exaggeration and false deductions, no one can read the history of cases as given to us, largely by English physicians, of myxedema and its treatment by thyroid extract, without being convinced that there is a great deal in this method of treatment. If one is not yet convinced let him read the account of two brothers, cretins, who were treated by Drs. Telford Smith and Railton. The account was published in the *British Medical Journal* of this year. The copies of the "before and after taking" photographs give proof of a wonderful transformation in these children.

It must not be forgotten, however, that in these cases of myxedema a cure is not effected. I mean by that that the treatment must be continued, in the same way that we should have to continue to give a patient hydrochloric acid if there were atrophy of the glands of the stomach. And the mode of action may be said to be somewhat similar. If the stomach, which normally creates hydrochloric acid, has its glands deficient, we may, perhaps, supply the deficiency artificially by giving the patient hydrochloric acid, but we cannot supply the lost glands. And in the same way, if the thyroid gland is absent we cannot by giving thyroid gland extract restore the lost glands, though we may supply the deficient chemical product necessary to health. Perhaps we shall find some cases in which there is simply a functional disturbance of the thyroid gland in which the animal extract will tide the patient over the period of functional inactivity, and in that sense work a cure.

An interesting question has been raised by Lantz, who has studied with Kocher in Berne, and Horsley in England, as to the etiology and pathology of exophthalmic goiter, and he suggests that much light has been thrown on the question by the use of the thyroid extract. Where too large a dose of the extract is employed its well-known and marked constitutional symptoms occur. Not only are there nausea, vomiting, neuralgic pains and great depression, but there is a very marked irritability of the heart, cardiac weakness, even syncope. Several cases with a fatal result from

the administration of the extract are on record. Now, if the giving of too much extract of the sheep's thyroid to a patient will produce these marked symptoms, may it not be that the elaboration by the human thyroid of too much of the chemical substance, whatever it is, produces these symptoms of cardiac irritability? May it not be that this hyperactivity of the gland has to do with the phenomena of exophthalmic goiter.

Dr. A. MEYER: I witnessed a number of experiments that were carried out in London and saw a number of patients at that time of whom a cure has been reported since. Last year a number of experiments were made with the extract of brain substance, in the Kankakee asylum, but only to a limited extent and it would not now be justifiable to give a statement for or against the method, but it was noticed that depressed patients showed the results of stimulation. Myxedema is at present the disease that has shown the most satisfactory field of experiment with regard to the animal extracts. It will be of interest to try these preparations on a rather large scale in hospitals where observations can be made carefully and where the patient is not apt to know what experiment he is undergoing. A great number of these experiments have naturally been made on people who knew perfectly well what was being done and therefore it is difficult to exclude mental suggestion.

Dr. ARCHIBALD CHURCH: The remark of Dr. Herrick in regard to exophthalmic goiter recalls to my mind that there is a diversity of opinion in regard to its treatment by extract of thyroid. As he has mentioned, some fatal cases have been reported, and Putnam, in Boston, has also reported two or three cases which were affected to their detriment by the use of the thyroid extract. I have now two cases using the desiccated thyroid with advantage. In each case it produced primarily considerable disturbance and then upon the reduction to a very small dose, improvement reasonably attributable to the remedy, has followed. I notice Bruns, of Germany, reports twelve cases of goiter treated in this way. Nine improved under it, in two there was no improvement, and one death occurred. In the nine where improvement was secured, six were restored to what was considered a condition of health in the other three notable improvement followed. The use of an extract of brain substance has been advised by a Liverpool observer in cases of defective development of the spinal apparatus, such as we find in Friedrich's ataxia, and two cases in his observation had shown some improvement. I am not prepared to express any opinion as to the

action of these remedies. In cases of locomotor ataxia where I have used the testicular fluid to some extent I have never been able to obtain results which were freed from complicating suggestion and I have obtained with other measures in the same line of spinal difficulty results even more beneficial for the time being.

In one case of acromegaly the preparation of Parke Davis & Co. and fresh thyroids administered for a long time were equally without result.

Dr. G. E. KRIEGER: Dr. Davis has laid 'no stress upon the present intention of physiological chemists to prepare the active principles of these extracts. He mentioned spermine and nuclein which have been proven to give satisfactory results in a large number of cases and a large number of diseases. The aim at present is to prepare the active principles in such a way that their effects on the system may not be counterbalanced by other substances which are contained in the fluid and which might nullify the effect of the active principles. For this reason I believe the use of the animal extracts as long as they are only glycerine or watery preparations is an imperfect one. Lately, it has been the object to free the stimulating elements from such other substances as are liable to neutralize their effect. This was first accomplished with great accurateness and perfection by Prof. Poehl, of St. Petersburg. I have tried to explain the character of these active principles in some papers I have read before this Society on spermine, and I can only repeat that my subsequent experience has been that these active principles work much more accurately than the extracts, and one has not so often a disturbance from other substances, especially the peptones and globulines, that are always carried over by simply extracting the substance with glycerine and water.

Dr. T. B. SWARTZ: From a chemical standpoint, the Brown-Sequard emulsion or fluid, extracted from the testicle, contains at least four different chemical principles. The first of these comes under the general head of phosphorized albumens. These are found in an extract of this kind proportionately in very large quantities. The second principle found in this abstract is lecithin, which was at one time known as phosphorized fat. The third element that has been demonstrated to be present is the so-called spermine, and the fourth is nuclein. Two of these elements possess undoubted therapeutic value, namely: phosphorized albumens and the lecithins or phosphorized fats. An extract of this kind, therefore, from a theoretical standpoint, contains all the elements

of a food ; especially of a nerve food. This is due to the presence of the phosphorized albumens and lecithin. The action of spermine has been variously explained and it has been referred to to-night as an oxydizing agent, increasing the oxygen carrying power of the red blood corpuscle. This is a valuable property, and if the fact can be maintained, will make spermine a valuable medicinal agent in any compound. Nuclein has been demonstrated by at least four reliable chemists to possess bactericidal properties. Now in a testicular abstract, produced by certain processes of maceration, we have not only an agent increasing constructive metabolism and general tonicity, but we have also agents that have specific action; namely, spermine and nuclein.

I began the use of the testicular juice of Brown-Sequard by hypodermic injection. It was difficult to procure and dangerous for hypodermic administration, owing to its proneness to decomposition. I therefore abandoned it and prepared an extract in a form for administration per orem.

In some cases, the administration of a full dose of the remedy is followed by a slightly increased pulse rate, flushing of the countenance and a moderate exaltation of the mental faculties. I made some observations in anemic cases, and have seen the hemoglobin increase from three to fourteen per cent every three weeks under the administration of this extract, without any other drug. In tuberculosis, I have seen the night sweats disappear, and the temperature, which was in some cases as high as 102, recede to the normal point, the cough being much ameliorated, the appetite and weight increased, and in every way the condition of the patient improved. In sexual neurasthenia the emulsion has proved of great benefit. In all of these cases, the action was prompt and rapid. I have used this extract in fully one thousand cases, consequently, I have had excellent opportunities to experiment with it, and I firmly believe that the animal extracts contain definite chemical principles, which are of more or less benefit in the treatment of a large proportion of diseases of the body, and furthermore, that it is not necessary that this animal extract shall be derived from corresponding organs, to the one whose functions we wish to restore, but that the identical chemical compounds cited, can be found many times in various organs of the body.

Dr. N. S. DAVIS, Jr., in closing the discussion, said: I have myself administered thyroid extract in doses little larger than are well borne, in several instances, somewhat thoughtlessly, perhaps, giving doses that are well borne by some patients and finding

in others that they are not well borne. When I have administered it in doses a little too large I have found the appetite uniformly diminished and sometimes the pulse rate quickened. One thing I have observed in the administration of thyroid extracts which has been persistent in several instances, that is a loss of flesh. Those who have watched the journals have probably noticed that thyroid extract has been recommended for the reduction of obesity. It has seemed to me that this effect was obtained only when doses were given sufficiently large to diminish appetite and power of digestion, and in this way interfere with nutrition. The reports in the journals have been very conflicting as to its utility in reducing flesh, some persons obtaining excellent results, others none.

In regard to the use of testicle extract by the mouth, the statement I made was that its effects were negative, or at least very variable. Those who have experimented most carefully with it say that they obtain only negative results when it is given by the mouth. This is the consensus of opinion of the most careful observers. I qualified the statement a little for the reason that I have had considerable experience in administering testicle extract by the mouth during the last two years, having given it frequently and for a great variety of diseases as an experiment. The effects which I obtained were for the most part entirely negative, but in certain cases it apparently produced very definite effects, and in individuals, too, who did not know what they were using. A marked increase in the feeling of well-being was noticed by them while they used the remedy, so that they desired to continue its employment. This was especially noticeable in two cases of diabetes. In spinal and other forms of neurasthenia I have tested the extract given by the mouth in a large number of cases, but with such variable results that I have not felt sure that they were not produced by other conditions than the administration of this drug.

Dr. DENSLOW LEWIS read a paper, see page 393, entitled

INJURIOUS EFFECTS OF PESSARIES.

Dr. NICHOLAS SENN: I would simply allude to an additional means of removing an imbedded pessary, which is sometimes accompanied by a great many difficulties. I have had a personal experience in two cases. In one case the pessary had been retained forty years and was firmly imbedded, and I resorted to fragmentation of the pessary, using bone cutting for-

ceps. In another case the pessary had remained thirty years, and the same operation was very readily performed. I can hardly conceive how, in a case of that kind, the saw could be a useful instrument, or in what way the galvano-caustic wire could be employed in dividing a boxwood pessary in such a locality.

Dr. DENSLOW LEWIS : The galvano-caustic wire is used by Chrobak and von Ott, and for that reason I thought it best to include it in the history of operative procedures recommended. Personally I have had no experience with it, and I would preferably make use of other measures, which in all probability would be quite as efficient. The day of the pessary, I think, is safely passed, the advance of aseptic surgery, the thorough understanding of the position of the uterus in its different relations, the thorough understanding of the different operations which have been suggested for the correction of malpositions of the uterus and the tubes have shown us very clearly that the pessary has no longer the use it had in former times.

Dr. E. H. LEE read a paper on

CHOLECYSTOSTOMY WITH REPORT OF CASES.

Dr. ALEX HUGH FERGUSON : In cases presenting themselves for surgical relief we have first to determine whether the abdomen should be opened, and if the disease is connected with the gall bladder or not. With regard to the diagnosis of enlarged gall bladder from appendicitis, I might mention one expedient, that is dilating the bowel with gas, either air or hydrogen gas. It will be remembered that the gall bladder is situated above the transverse colon and the vermiform appendix is situated below it. The operation of cholecystostomy is certainly the preferable one, and I think is the operation indicated in the great majority of cases of cholelithiasis. Where we have gallstones in the gall bladder and have opened the abdomen it is hard to determine, with an enlarged gall bladder presenting, whether we have an empyema or simply a case with cholelithiasis with a certain amount of bile, or, in some cases, simple dropsy of the gall bladder so that it may be necessary to aspirate before you can determine what is in it. Should it be found to be pus another expedient can be resorted to which will render the operation much safer, that is by putting two trocars into the enlarged gall bladder and thoroughly irrigating it before doing any further operative procedure.

The opening of the gall bladder in one sitting enables one to

determine the condition of the ducts, their permeability or nonpermeability. In all cases of permeability of the ductus communis choledochus I fancy no communication should be made with the duodenum or any other part of the alimentary tract, and that it is patent can best be ascertained after the gall bladder is opened. First of all ascertain what, if anything, is in the cystic duct, then the permeability of the common duct can be ascertained by probing with one or two small catheters, and should one of these not pass down, it can be tested with water. In empyema, we very frequently have jaundice, which may be the dangerous part of the condition of the patient. Then it is essential to remove the stone from the commencement of the common duct through the cystic duct, and incised gall bladder. In one of my cases a stone was lodged in the commencement of the common duct obstructing it and removed in this way. It was a case of empyema and the jaundice was the great trouble. Then, again, in empyema there is danger to life from absorption of septic material from the gall bladder. So we have these two prominent dangers before us in operating upon the gall bladder, which call for immediate relief. I might mention one indication for doing cholecystostomy that has not been spoken of, and that is obstruction of the ducts with hydatid cysts ; I have met one such case.

Dr. J. FRANK : In listening to this paper I conclude, from the remarks of the author, that it rests solely upon the technique of the operation and the safest method, that is, that cholecystostomy is safer than cholecystenterostomy, and that cholecystostomy is safer in two than in one tempo. I also fully agree with one of the previous speakers that cholecystostomy made in one tempo is better for the surgeon, as we can determine whether there are any stones in the common duct or the cystic duct, and if necessary we can push them up into the gall bladder. I exhibited some cases before this society four years ago where I made the operations in one tempo and two tempos, and so far as my experience goes with the gall fluid the bile is not such a bad fluid for the peritoneum as we would be led to believe, as in one of my cases the gall bladder was entirely contracted over the calculi, which were almost the size of English walnuts, and it was impossible to bring the peritoneum around the gall bladder as there was hardly any gall bladder left, therefore a large ununited space had to be left which was packed. Not finding any trouble, I have since then made all the operations in one tempo, first packing sponges around the space and emptying the gall bladder, then going with the fingers into the peritoneal

cavity to discover if any obstruction exists in the common duct. So far I have not made a cholecystenterostomy at the same sitting, not finding any obstruction, but should I, I would feel perfectly safe in sewing the opening in the gall bladder to the skin, and then making a cholecystenterostomy at the same sitting. I have not as much fear of the bile as I used to have. There is another point in making a cholecystostomy in one tempo, it is my belief that if it is made in one tempo the patient will recover more rapidly and feel more comfortable. For instance, in two tempos we sew the peritoneum around the gall bladder or pack it and leave it for three or four days. Now what have we got? We have a limited space in which to remove a large stone; we have either to etherize the patient again, and probably she is in such a condition that it is almost impossible to narcotize her, and we often find in these cases that when we come to operate the pulse is very rapid and thready, but if we do it in one tempo we can remove large stones because if the incision is not large enough we can enlarge it. Therefore I think the operation in one tempo is as safe as in two tempos.

Dr. T. A. DAVIS: I think we can learn the lesson from the history of operations upon the gall bladder, the same as in appendicitis, that the indication is always for an immediate exploratory laparotomy. The most severe or fatal cases are those which may give rise to the least symptoms. I have recently had a case in my service in the County Hospital where there was found post-mortem a fistula lying over the ascending portion of the duodenum, the diameter of a large lead pencil, leading into the gall bladder, and a sinus leading from the duodenum to an abscess cavity existing between the duodenum and the gall bladder. In the gall bladder was a single gallstone weighing ninety grains. This stone was faceted on two surfaces, showing that one or more stones had existed in the gall bladder and had passed off, probably through the fistulous tract between the gall bladder and the duodenum.

The history of this patient showed that she never had an attack of gallstone colic previous to entering the hospital, that she had been in the hospital less than three weeks, and with the exception of two or three days when she required moderate hypodermic injections of morphine that she had no pain. Her temperature never went above 99°. I advised operation for gallstone, the diagnosis being based on a tumefaction and slightly increased palpatory resistance in the right hypochondriac region, jaundice, and a history of some stomach disturbance. The husband of the

patient did not come to the hospital until five days following, when consent to the operation was given and I made arrangements to operate the following morning. That night the patient went suddenly into collapse. An attempt was made to relieve her by laparotomy and it was found that diffuse peritoneal invasion had occurred from the spontaneous rupture of the abscess.

Now, here was an abscess which would hold an ounce and a half of pus between the gall bladder and duodenum, and which from the character of its walls had existed there for weeks. One or more stones had passed off from the gall bladder; and still without symptoms which would indicate an operation from the physician's standpoint.

One of the recovery cases reported by Dr. Lee, gives a clinical history in marked contrast to the one just mentioned. The patient, a male, has had several attacks of gallstone colic since last February, in all of which the pain was very severe, and in one attack was accompanied by persistent vomiting, which became fecal the fourth day, and very copious, sometimes nearly a quart in quantity.

There was absolute constipation for five days. The intensity of the intestinal obstruction symptoms made it seem imperative to laparotomize, but just as arrangements were completed for that procedure the wife of the patient succeeded by enemata in restoring the fecal circulation. The operation was declined until three subsequent attacks of colic exhausted the endurance of the patient when surgical aid was accepted.

Cholecystostomy, in the technical sense, could not be performed in this case, but a cholecystotomy with iodoform gauze to wall in the lesion from the general peritoneal cavity. The patient was very corpulent with a small retracted gall bladder and with the usual incision I was unable to bring it into the wound. It was quite difficult even to suture the gall bladder so as to fix it in position while extracting the stones. Finally this was accomplished and the incision made into the gladder, opening wide the fundus between the two fixation threads. Several stones the shape and size of a small mulberry were removed, two of which from the cystic duct.

A glass drainage tube was inserted into the gall bladder and the threads of silk tied over the end of the tube to prevent its slipping out, and the surrounding space was packed with iodoform gauze. It is now fifteen days since the operation; the tube was removed the third day and the packing the fifth. The pa-

tient has had no temperature nor discomfort. At first a large quantity of bile escaped, but now it is less than half an ounce in forty-eight hours. A cholecystenterostomy could not have been done and a cholecystectomy would have been a much more severe operation. This method of walling off the peritoneal cavity is the least difficult to perform and has proven satisfactory in the recovery of my patient.

Dr. CARL BECK: I wish to make a few remarks in regard to those cases with very large and extensive adhesions that have been mentioned. I have had one such case in my practice, in which it was impossible to use any of the known methods. The contents would certainly have caused infection, as I had to do the operation in one sitting. I therefore separated the gall bladder from the liver as deep as I could, then formed a flap of the gall bladder, brought it up and sutured it to the border of the liver, thus making a funnel. The opening of that funnel was sutured to the abdominal wound; then the cavity was packed and drained toward the abdominal wound. The patient recovered. A few stones were removed at once, and about forty-seven stones were discharged afterward; then the fistula closed.

Dr. E. W. LEE, in closing the discussion, said: I wish to lay stress once more upon the operation in two sittings; I think it is by all means the safest method, especially in empyema of the gall bladder.

Dr. W. K. JAKES read a paper, see page 401, entitled

A METHOD OF FACILITATING THE EARLY DIAGNOSIS OF DIPHTHERIA.

There were 130 members and visitors in attendance.

On motion, the Society adjourned.

JUNIUS C. HOAG, Secretary.

News Items.

FOR RENT. Morning hours up to 11 o'clock in the office of Dr. Hoadley, 810 Venetian Building.

DR. J. C. CORK, of Hyde Park, has gone to Berlin to investigate the serum treatment of diphtheria.

THE WOMAN'S MEDICAL CLUB OF CHICAGO gave the first banquet of the season at the Auditorium Hotel, November 14.

DR. WILLIAM T. THACKERAY, of Chicago, has been chosen Director General of the fair to be held by the Central American republics in 1896, in Honduras.

THE ALVARENGA PRIZE for 1894 has been awarded to Dr. G. E. De-Schweinitz, for an essay entitled "The Toxic Amblyopias: their Pathology and Treatment."

THE WESLEYAN TRAINING SCHOOL held its third annual graduation exercises last month. The class consisted of four nurses. Dr. and Mrs. H. M. Starkey gave an informal reception at their residence to the nurses of the school and the alumnae.

WANTED. By a regular graduate and competent physician of more than twenty years' experience a partnership with some well established physician in Chicago. A reasonable consideration will be paid. Address, stating terms and amount of business done during the year, PHYSICIAN, care of MED. RECORDER.

THE BIG FOUR has organized, through its chief surgeon, Dr. J. H. Ford, a hospital system, which will be operative on February 1, 1895. There will be a central hospital at Indianapolis and independent hospitals will be established on the various divisions. On this railroad system there are eighty local surgeons, which number will be increased to one hundred.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION at their recent meeting held at Hot Springs, Arkansas, elected the following officers: President, Dr. W. N. Wishard, of Indianapolis; Vice Presidents, Drs. T. E. Holland, Hot Springs, and Charles B. Parker, Cleveland; Secretary, Frederick Woodburn, Indianapolis; Treasurer, Harold N. Moyer, Chicago. Detroit was selected as the place of next meeting.

DR. ADOLPH MEYER, of the Hospital for the Insane at Kankakee, will give a course of lectures of two hours each in the Chicago University extension class work department, on the anatomy of the nervous system, with full reference to pathological and physiological facts. The course is intended for physicians and senior medical students, and will be held in the Atheneum Building Saturday evenings, commencing January.

DR. ARPAD G. GERSTER has received from the Emperor of Austria and King of Hungary the high distinction of the Knight's Cross of the order of Francis Joseph in grateful recognition of his valuable philanthropic labors in founding the Hungarian Emigrant Aid Association of this city. This is the first instance in which an American citizen has received this honor who has not held office under the Austrian government.

THE CHICAGO SUMMER SCHOOL OF MEDICINE, the first session of which opens March, 1895, has been organized, with William F. Waugh, M. D., formerly of Philadelphia, as Dean. On November 22, the board of directors and faculty dined at the Auditorium Hotel. The faculty is composed of the following gentlemen: Drs. William F. Waugh, J. J. M. Angear, John R. Pennington, Randolph N. Hall, Carl Theodore Gramm, W. C. Dugan, Frank S. Billings, Seth Scott Bishop, Fred Byron Robinson, William H. Wilder, William L. Baum, Mark H. Lackersteen, A. H. Ferguson, James Leslie McCollum, William Rittenhouse, J. W. Meek and Hon. John Gibbons.

THE INDEX MEDICUS will be discontinued with the February number unless it receives more support, as it is now being published at a great loss. Owing to its peculiar scope it has no commercial support, and consequently its subscription list has been small, and it is reported that there have been many delinquents. Unless 500 new subscribers can be obtained, this most valuable reference work will have to cease. It is hoped that every medical man who is interested in teaching, writing or in cotemporary literature will himself subscribe and urge others similarly interested so to do. Without its aid, reference to recent opinions on any given medical topic is an endless work, while by its aid the whole ground can be covered with great readiness. The subscription price is \$10 per annum, which is to be sent to Mr. George S. Davis, Box 470, Detroit, Mich.

THE COOK COUNTY HOSPITAL ALUMNI ASSOCIATION held its first literary meeting at the University Club, Chicago, November 27,

with Dr. William Fox, of Milwaukee, in the chair. Dr. Roswell Park, of Buffalo, read a very carefully prepared and scientific paper entitled "Septic Processes Within the Cranium," in the discussion of which much of value was contributed by Drs. Fenger, Murphy and others. Dr. Frank Billings read a paper on Joint Lesions of Nervous Origin, presenting the history of a case, with numerous photographs, of a highly important character. The paper was discussed by Drs. Bridge, Quine, Church, Favil and Wing. The literary portion of the programme followed a very pleasant dinner, and it is the intention of the Association to hold such literary meetings several times a year. The high character of the membership of the Association should enable it to present material of the very first importance, and we may expect in the future to receive from this source many valuable contributions to medicine and surgery.

PAMPHLETS RECEIVED.

Charity Organization and Medicine. By George M. Gould, M. D. *Med. News*, October 13, 1894.

Fifteenth Biennial Report of the Illinois Asylum for Feeble Minded Children, at Lincoln. July 1, 1894.

Retropharyngeal Lymphadenitis. By W. E. Casselberry, M. D. *Journ. Am. Med. Ass'n*, September 29, 1894.

A Case of Contusion and Rupture of the Ileum. By Frederick Holme Wiggin, M. D. *N. Y. Med. Jour.*, January 20, 1894.

Legal Criticism of Medical Expert Evidence. By Clarke Gapin, M. D., LL. B. *Journ. Am. Med. Ass'n*, September 23, 1893.

The Defective Classes and Legislation for the Prevention of Blindness. By Boerne Bettman, M. D. *Journ. Am. Med. Ass'n*, December 1, 1894.

Trachoma, or Granular Lids. *Journ. Am. Med. Ass'n*, September 29, 1894. Toxic Amblyopia. *Journ. Am. Med. Ass'n*, October 20, 1894. By James A. Lydston, M. D., Ph. D.

Operative Treatment of Fibroid Tumors of the Uterus. *Journ. Am. Med. Ass'n*, August 11, 1894. Treatment of Pelvic Abscesses by Laparotomy, with a Report of Eighty-two Cases. MEDICAL RECORDER, May, 1894. By Franklin H. Martin, M. D.

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